COMMERCIAL REFRIGERATION & AIR CONDITIONING

SEPTEMBER, 1953

- How Salesmen's Wives Can Help Them Sell
- A Simple Formula for Assuring Service Profits
- How Window Treatment Affects Air Conditioning Loads
- Service Methods for Commercial Air Conditioners

POSITIVE PROTECTION

around the clock

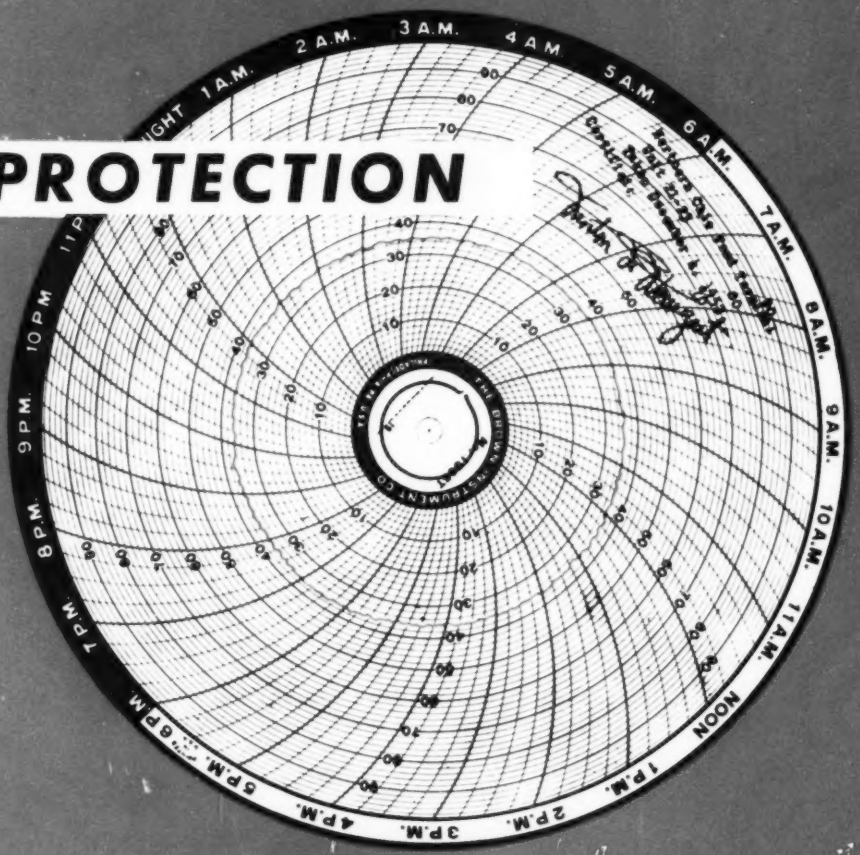
is assured by

a "duplex" system

of refrigeration.

For the full story

turn to page 36.



MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT

You never had it so dependable

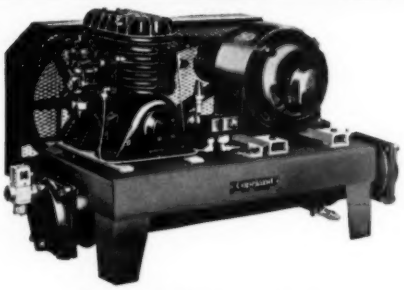
COPELAMETIC

THE *Accessible* HERMETIC

For long-term customer satisfaction . . . for easy, profitable selling . . . you've got a sure winner when you feature the Copeland line. Candidate for top honors in refrigeration ingenuity is the practical COPELAMETIC . . . the Accessible hermetic. These compact, quiet, rugged units can show a 90% saving in maintenance. There is a size for every application, remote or self-contained.

When you sell Copeland equipment, you offer soundly-engineered products backed by consistent promotion to your customers.

WRITE FOR BULLETIN C-52A



OPEN-TYPE UNITS

Copeland open-type units are available in air-cooled models ¼ H.P. through 3 H.P. and water-cooled models ⅓ H.P. through 7½ H.P. Specification data on request.

Copeland

DEPENDABLE *Electric* REFRIGERATION

REFRIGERATION UNITS (OPEN TYPE AND COPELAMETIC) WATER COOLERS

COPELAND REFRIGERATION CORPORATION · SIDNEY, OHIO

Circle No. 1 on Reader Service Card

YOU PROFIT BY

Curtis EXPERIENCE

in 15 years

of Packaged Air Conditioning Pioneering

One of the First in the Industry

Curtis units that were installed back in the days when packaged air conditioning was a novelty are still giving faultless service. Today's Curtis packaged units are better than ever . . . perfected by 15 years of experience.

YOU'LL SELL more packaged units when you sell these Curtis advantages:

- Long life, slow speed operation
- Quiet and dependable
- 5 year warranty
- Easy installation
- Attractive, modern appearance
- Complete range of sizes — 2, 3, 5, 7½, 10 and 15 tons

Nationally Advertised in THE SATURDAY EVENING POST, TIME and NEWSWEEK.

For Full Information
MAIL THIS COUPON WITH YOUR LETTERHEAD

748

CURTIS REFRIGERATING MACHINE DIVISION
of Curtis Manufacturing Company
1915 Kienlen Avenue, St. Louis 20, Missouri

I am interested in direct factory franchise. Send complete details.

Company Name.....

Street.....

City..... Zone..... State.....

Signed.....

CURTIS REFRIGERATING MACHINE DIVISION
of Curtis Manufacturing Company (Since 1854)
1915 Kienlen Avenue • St. Louis 20, Mo.

Circle No. 3 on Reader Service Card

Established in 1944 as THE REFRIGERATION INDUSTRY, this magazine has no official affiliation with any group, society, or association.

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PRECISION METAL MOLDING

COMMERCIAL REFRIGERATION & AIR CONDITIONING

SEPTEMBER, 1953
VOLUME 10, NO. 9

IN THIS ISSUE

AIR CONDITIONING SECTION

DEPARTMENTS

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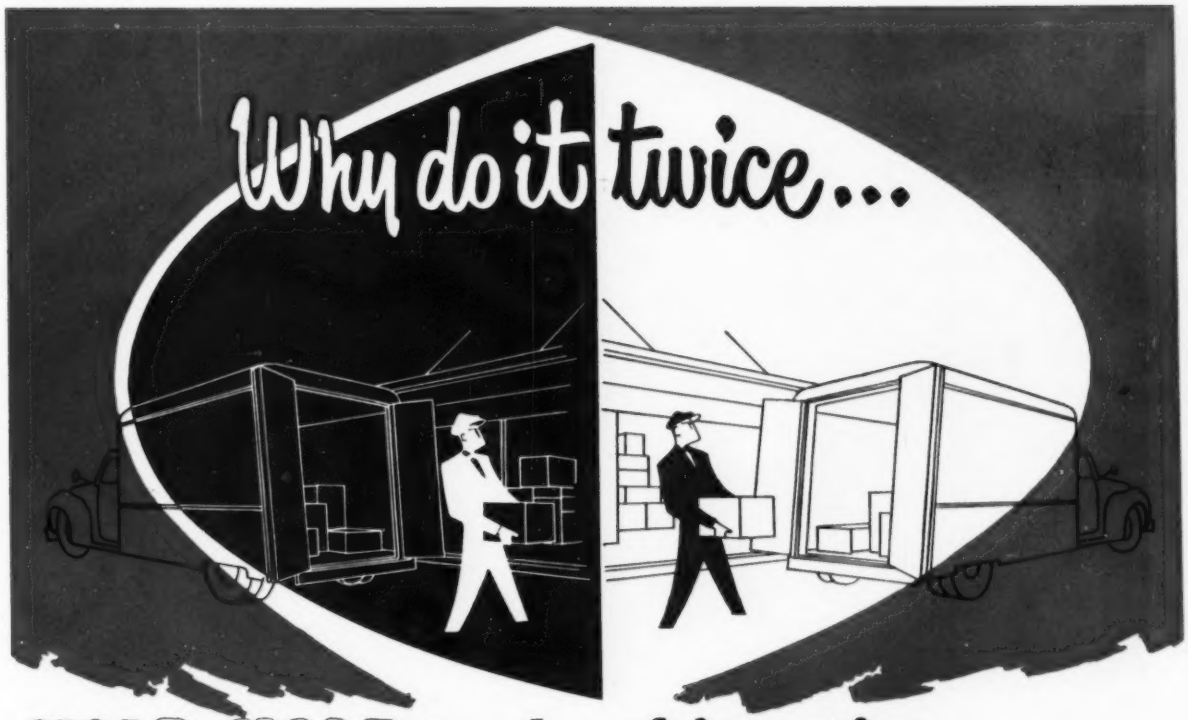


KOLD-HOLD truck refrigeration

WILL PAY FOR ITSELF!

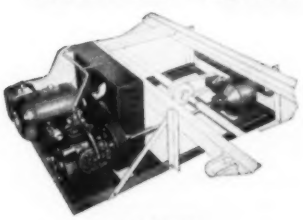
Hundreds of cases have proven that without truck refrigeration you may be doing double the work. Unrefrigerated trucks cut down on the length of hauls and the time the truck is on the road. Smaller loads and shorter runs mean double trucking — and double handling time in loading and unloading. Undelivered loads at the end of a work day present a problem.

Kold-Hold dependable truck refrigeration saves this loading and unloading time. It maintains pre-determined temperatures throughout day-long hauls. Undelivered loads can be left in the truck for the next day's delivery because your truck becomes "a cooler room on wheels."

One user reports, "If the results we have experienced with this installation are an indication of what we can expect in the future, you may be assured that all our new units will be Kold-Hold equipped. We are also replacing our other trucks with Kold-Hold as soon as possible."

Couple the savings you make when you "don't do it twice" with the fact that you have no spoilage losses and that your product is delivered in prime condition and you have the reason why Kold-Hold truck refrigeration pays for itself.

KOLD-HOLD *can answer any refrigeration problem!*



KOLD-TRUX

Which do you prefer . . . Mobile or Hold-Over truck refrigeration? Kold-Hold can give you either or a combination of both.

When your weather worries start, pick out the routes with the biggest refrigeration problems and call on Kold-Hold to give you a satisfactory solution. They will give you the right combination for your needs from such highsides as the Kold-Trux Mobile Unit, a mounted compressor, or make-and-break assemblies, coupled to such lowsides as Kold-Hold Hold-Over Plates, Thin Plates, Serpentine Quick-Action Plates, or Blowers.

Why not give us the details of your problems and let our engineers find the most efficient solution for you. Write today for details.

HOLD-OVER PLATES

Tell us your truck refrigeration problems and send now for complete data and literature.

KOLD-HOLD

PROCESSING · STORAGE · TRANSPORTATION protects every step of the way

Division of TRANTER MANUFACTURING, Inc., 533 E. Hazel St., Lansing 4, Mich.

Circle No. 5 on Reader Service Card

"Here's how we keep out of trouble"

Scale, algae, dirt and slime, if allowed to accumulate in "evaps," cooling towers, shell and tube condensers, will soon cause trouble. Head pressures mount. The machine may run all the time, or not at all. The way to prevent such trouble is to use **Solvex Maintenance Grains** regularly.

If you now have a neglected system and want immediate relief, **Solvex Cleaner Grains** will give you that. They can be used while the machine is in operation and, in most cases, will reduce head pressures in less than an hour. Solvex is also available in easy-to-use tablet form.

Solvex* contains no harmful acids or alkalis. It doesn't present a hazard to the operator. It can't harm equipment.

"Virginia" distributes two other Solvex products of interest to refrigeration engineers: **Ice Machine Cleaner Powder** *safely* removes lime deposits, slime and dirt which cause cube lock, opaque ice, slow freezing and offensive tastes. **"CC" Coating,** an excellent waterproofing and rust-preventive compound, is particularly suited for use where galvanizing has been unsatisfactory.

Your wholesaler has these fine-quality products. Or write VIRGINIA SMELTING CO., Dept. 64, West Norfolk, Va.

*Manufactured by the CHEMICAL SOLVENT CO., Birmingham, Ala.

VIRGINIA *Refrigerants*

ESOTOO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSTITE TAPE
SOLVEX PRODUCTS • SUNISO REFRIGERATION OILS

Circle No. 6 on Reader Service Card

IF YOU WERE Your Prospect

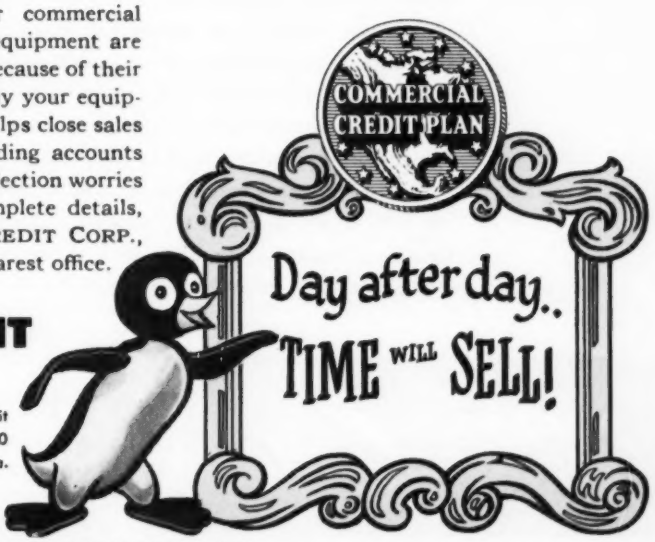
which "pitch" would sell YOU ?

Feature Time Payments to close more sales with the *COMMERCIAL CREDIT PLAN*

MORE AND MORE prospects for commercial refrigerating and air conditioning equipment are becoming, of necessity, TIME BUYERS. Because of their cash position it's the only way many can buy your equipment. The COMMERCIAL CREDIT PLAN helps close sales . . . improves your cash position by avoiding accounts receivable. And you turn your credit and collection worries over to COMMERCIAL CREDIT. For complete details, facts and figures, write COMMERCIAL CREDIT CORP., 14 Light Street, Baltimore 2, Md. or our nearest office.

COMMERCIAL CREDIT
CORPORATION

A service offered through subsidiaries of Commercial Credit Company, Baltimore . . . Capital and Surplus over $135,000,000 . . . offices in principal cities of the United States and Canada.



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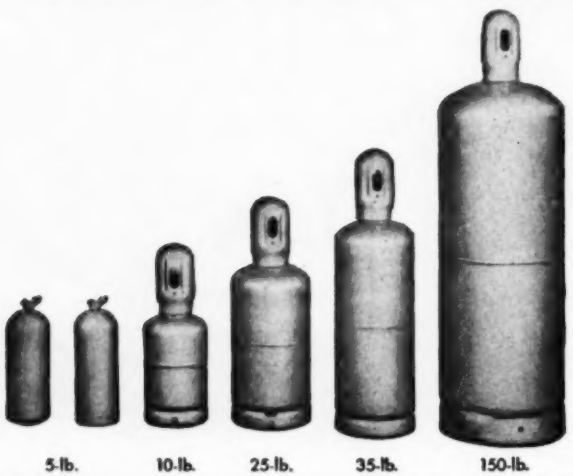
DON'T SETTLE FOR LESS ....

use Prest-O-Lite Trade-Mark CYLINDERS FOR REFRIGERANTS



- ✓ Rugged, sturdy construction
- ✓ Uniform sidewall thickness
- ✓ Lightweight—easy to handle
- ✓ Finest workmanship
- ✓ Best appearance
- ✓ Tested far beyond all codes
- ✓ Extra years of trouble-free life
- ✓ They're economical!

You are *sure* that your refrigerant gas containers will give you many years of dependable service—and save you extra dollars—when you own PREST-O-LITE cold-drawn cylinders. They're built by the company which has been the largest manufacturer and *user* of compressed gas cylinders for almost half a century. In each step of design and fabrication the ultimate in gas containers is achieved—and this skill and experience is passed on to you with every PREST-O-LITE cylinder you get. It's no wonder that refrigerant cylinder buyers who have compared feature for feature have found out they are getting the greatest value with top-quality PREST-O-LITE cylinders.

Available in sizes ranging from 5-lb. to 150-lb. capacities—with valve, and cap on all but 5-lb. styles. A few of the popular squat-type cylinders are shown above. You'll like their good-looking appearance, with glossy metallic bronze finish. WRITE TODAY for full information and prices—select the PREST-O-LITE cylinder that fits *your* needs exactly.

MADE BY Linde

"Prest-O-Lite" is a registered trade-mark of Union Carbide and Carbon Corporation.

LINDE AIR PRODUCTS COMPANY
A DIVISION OF UNION CARBIDE AND CARBON CORPORATION
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In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto

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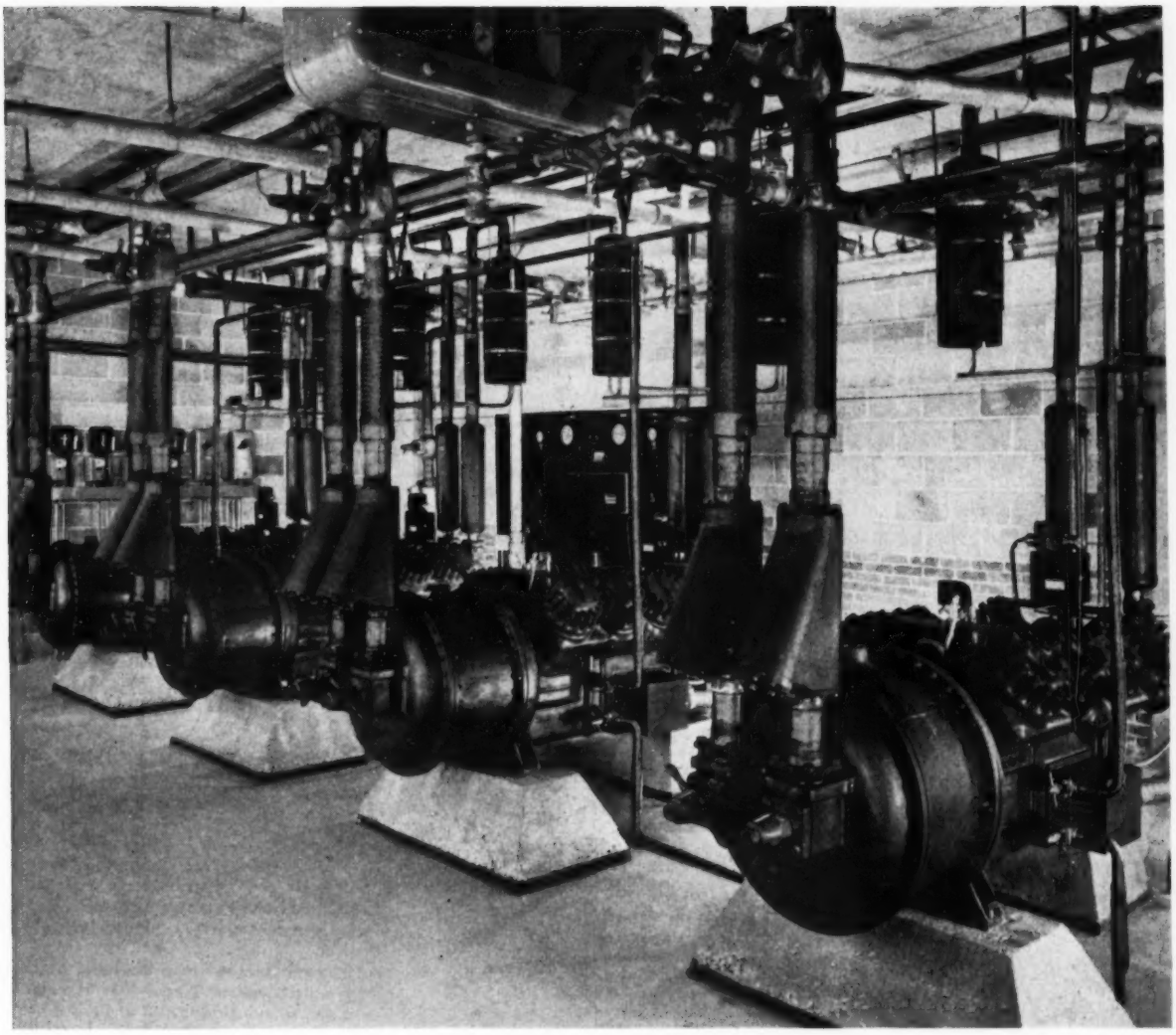


Vibration is isolated from the copper piping of this 400-ton installation

The thoughtful design of piping for this air conditioning system, installed in a large western newspaper plant by The T. C. Alexander Co. of Denver, is clearly apparent in the care taken to isolate compressor vibration. Note that the connection of every ANACONDA Copper Tube to every compressor is made through an American Vibration Eliminator.

The ANACONDA Copper Tube used throughout this installation ranges in size from 1⅜ in. to 5⅛ in. O.D. Return lines to the four 100-ton compressors are brought back through two 5⅛ in. O.D. copper lines to a common header. Two 4⅛ in. O.D. copper discharge lines similarly run from a common header. Crankcase and oil equalizer lines are also copper of 1⅜ in. O.D. with Vibration Eliminators at each compressor. The entire installation is automatic in operation, each unit being brought into the line by a sequence control system according to the load demand.

ANACONDA Copper Tubes with ANACONDA Solder-Type Fittings make a quality job of any piping installation. And wherever vibration is a factor, be sure to isolate it with American Vibration Eliminators. Your Anaconda Distributor can furnish you with ANACONDA Copper Tubes, Fittings and Vibration Eliminators. Order through him. *The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.* 5331

ANACONDA®

MAKERS OF
COPPER TUBES AND FITTINGS
and AMERICAN VIBRATION ELIMINATORS

Circle No. 11 on Reader Service Card

It's the LAW!

by Albert Woodruff Gray

Legal problems are an inherent part of operating any business enterprise. If you are beset by them, you'd better talk to your lawyer. This column, which will appear periodically in the issues of COMMERCIAL REFRIGERATION AND AIR CONDITIONING, in no way aspires to serve as legal counsel for our readers. It is prepared, however, by a man well versed in legal practices and opinions, and by presenting digests of actual court cases involving commercial refrigeration and air conditioning dealers and contractors we hope to enable our readers to sidestep some of the legal pitfalls into which they otherwise might unwittingly stumble.

— The Editors

TENANT LIABLE FOR DAMAGES FROM REFRIGERATOR

A store and office building was occupied by a nationally known wholesale food distributor, which had equipped this building with a refrigerating system operated under electric power.

The refrigerant Freon was used until the restrictions of World War II compelled the substitution of methyl chloride. In a comparison of the features of these two refrigerants the Federal Court said, "The important difference between them is that Freon is comparatively harmless whereas methyl chloride is dangerous when not properly controlled because it is toxic, inflammable and subject to ignition and explosion."

Subsequently a repair and maintenance company was called in to service this system. Finding a leak in the bellows of the pressure switch, the repair man, not having the necessary parts with him, said he would return with the needed items after lunch.

During his absence, water or liquid refrigerant leaked into the compressor. Upon his return the service man repaired the bellows, started the motor and put the compressor into operation. As a result of the presence of this liquid in the compressor the head was broken, permitting the escape of the refrigerant. The vapor ultimately reached a heater in the cellar followed by an explosion and a disasterous fire.

In the lawsuit brought by the landlord against the tenant for the damages to the building, the food company maintained that these repairs had been made by the

"Pretty cool! They're planning Honeywell Air Conditioning Controls"

We doubt that cartoonist Larry Reynolds' character, Butch, knows the difference between a conduit and a damper.

But he certainly recognizes a sound idea when he sees one.

The plain fact is—there's no better guarantee of dependable, trouble-free operation than the Honeywell name on automatic controls for air conditioning and refrigeration.

That's why it's wise to make your first choice Honeywell Controls—just as leading architects, builders and consumers do, all over the nation.

For full information—or an 8½" x 9" personalized reproduction of this Reynolds' cartoon—write today to Honeywell, Dept. CR-9-158, Minneapolis 8, Minnesota. In Canada, Toronto 17, Ontario.

MINNEAPOLIS
Honeywell

First in Controls

Circle No. 13 on Reader Service Card

service company, which was an independent contractor and that any liability rested on that company, not on the food company as tenant.

Of the responsibility for the damages arising from the repairing of this refrigerating system, the Federal Court said, in holding the food company liable, that it was the duty of that company "to make such repairs carefully to avoid danger to the building. It knew that a dangerous refrigerant was in use and its duty was to exercise care commensurate with the known danger.

"It was bound," continued the court, "to exercise such care, skill and diligence in all its operations, and in the transaction of all its business, as the difficulty, delicacy and danger of its business requires. It could not delegate such responsibility to an agent or to an independent contractor. The defense of independent contractor has no application to the facts in this controversy."

Standard Brands v. Bateman, 184 Fed. 2d 1002.

REFRIGERATING EQUIPMENT AS FIXTURES

REFRIGERATING equipment was was sold by a company in Atlanta, Ga., and regularly installed. The conditional sale contract was filed for record in the county as provided by the stature for the filing of mortgages relating to personal property.

Four months later the building in which this equipment had been installed was sold, and subsequently the purchaser of the building obtained an order prohibiting the seller of the equipment from removing it, claiming that it was so attached to the building that it had become a part of it.

Holding that the filing of this contract was sufficient to retain title in the seller to this refrigerating equipment and that he was entitled to its possession, the Georgia court said,

"The recording of this contract and the notation of it on the index relating to personal property by the Clerk of the Supreme Court afforded ample constructive notice of the outstanding contract reserving title to the said equipment contained in the building. And this is true whether the property retained its identity as personalty or became merged into and a part of the realty."

Shoppen v. Georgia Power Co., 159 S.E. 268, Georgia

NAMED DISTRICT MANAGER

Ralph G. Cox, who established the sales representation for the Fiber Glass Div. of Libbey-Owens-Ford Glass Co. in the southeastern states, has been promoted to district manager for the southeastern region with offices in Charlotte, N. C.

Here are the Symbols SPORLAN has made Famous!

No other thermostatic expansion valve designed for commercial refrigeration offers the Peak Performance of Sporlan's Famous G Valve with Selective C and Z Charges.

INTRODUCED by Sporlan to the industry in 1934, this combination has steadily forged ahead in popularity until today refrigeration men, both young and old, have made it their No. 1 choice... They know best what Peak Performance really means!

"C" CHARGE *for suction temperatures* above *zero.*

"Z" CHARGE *for suction temperatures* below *zero.*

plus **"X" CHARGE** *for extremely low temperatures.*

Buy a Sporlan "G" Valve

with Selective Charges from your Wholesaler today!... and be sure to ask him for the Sporlan 52-C Catalog. With it you can select the proper Thermostatic Expansion Valve, Solenoid Valve and Catch-All to give that Sporlan "Right-Down-the-Line" Peak Performance!

SPORLAN VALVE COMPANY

7525 SUSSEX AVE. ST. LOUIS 17, MO.

EXPORT DEPARTMENT
89 BROAD STREET NEW YORK 4, N. Y.

Circle No. 15 on Reader Service Card

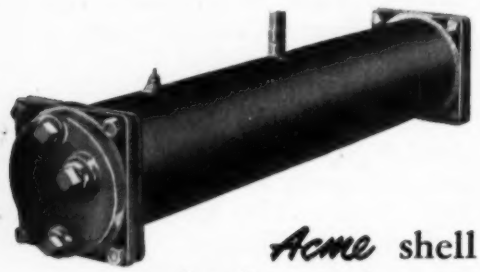
YOU'LL FIND THESE *Acme* PRODUCTS AT AMERICA'S FOREMOST WHOLESALERS

Acme oil separators

Six models. 1/4 to 10 h.p. capacity. Maximum separation because of low gas velocity and special filter cartridges.

Acme heat exchangers

Newly designed. Capacities ranging from 3 to 200 tons. Extended bar type fin surface with a gas to liquid side ratio of 13 to 1. Extremely low pressure drop.



Acme shell and tube condensers

Capacities ranging from 1/2 to 30 tons. Compact size, extended tube surface, easily cleanable, cast iron water heads "through bolted" to the tube sheet, and sheets welded to the condenser shell. Preferred by better equipment manufacturers the world over.

Acme shell and coil condensers

Inexpensive, efficient. Capacities from 1/2 to 5 tons. Compact, sturdily constructed, chemically cleanable. All units have integral fin copper tubing. Acme builds shell and coil condensers for the leading packaged Air Conditioner manufacturers.

Ask your wholesaler about immediate delivery of Acme's new Flow-Cold Cooling Towers.

ACME INDUSTRIES, INC.

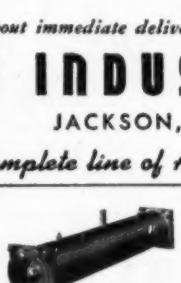
JACKSON, MICHIGAN

Mfgs. of a complete line of Air Conditioning and Refrigeration Equipment

Evaporative Condensers
Cooling Towers
Floor-type Unit Coolers

Direct Expansion (Dry-Ex) and Flooded Liquid Chillers

Heat Exchangers, Oil Separators



Shell and Tube, Shell and Coil Condensers

Receivers, Pipe Coils

Packaged Liquid Chillers to 225 tons

Flow-Temp Heat Pumps

Flow-Cold Liquid Chillers

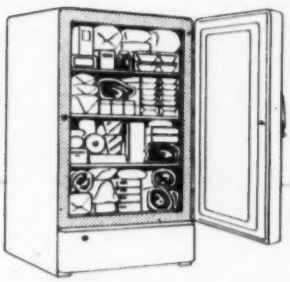
Remote Room Conditioner

Continuously serving the refrigeration and air conditioning industry since 1919

Circle No. 16 on Reader Service Card

Victor QUICKFREEZER

LEADERSHIP MEANS PROFITS FOR *You*



(Above) New 19 cu. ft. Victor Upright holds 650 lbs. of Food! (Available with Inner Shelf Doors at slight additional cost.)

Victor chest type *Quickfreezer* . . . 8, 10, 14, 19, 21.5 & 23 cu. ft. sizes!

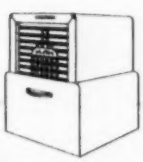
NOW

Victor is telling America about the complete line, the dependable line of VICTOR products in the greatest national advertising campaign in its history.

ALWAYS

Victor is keeping that leadership by looking ahead . . . in bringing out new models, new developments . . . improved products . . . the EXCLUSIVES that have made and will retain VICTOR unchallenged leadership.

Victor Room Air Conditioner . . . exclusive three dimensional cooling with "push button" control.



Victor Dehumidifier . . . removes excessive moisture (dampness) and prevents rust, mildew, and corrosion.

FORGING AHEAD

Toward new horizons, ever expanding production facilities to meet the pressing demand of increased orders from both old and new customers.

FOR THE FUTURE

More Sales . . .
More Profitable Sales
in this . . .
America's fastest growing industry. *Victor* is helping you to build a strong business for the years ahead. Send now for details on the complete VICTOR LINE.

FIRST NAME IN QUICKFREEZERS

Victor

UNSURPASSED QUALITY and Value in FREEZERS DEHUMIDIFIERS · AIR CONDITIONERS

VICTOR PRODUCTS CORPORATION · HAGERSTOWN, MARYLAND

VICTOR PRODUCTS CORPORATION
HAGERSTOWN, MARYLAND

Gentlemen: Please send complete details on the Victor products checked below.

- ☐ Upright Quickfreezers
- ☐ Chest-Type Quickfreezers
- ☐ Air Conditioners
- ☐ Dehumidifiers
- ☐ Beverage Coolers
- ☐ Milk Coolers
- ☐ Self-Service Frozen Food Merchandisers
- ☐ Ice Makers
- ☐ Sterilizers
- ☐ Walk in High Temperature, Low Temperature Rooms
- ☐ Reach-in Refrigerators
- ☐ Triple Deck Merchandisers
- ☐ Self-Service Cases
- ☐ Service Cases

Name _____

Address _____

City _____

State _____

Circle No. 17 on Reader Service Card

ANSUL T-*FLO* DRIER WITH ANDRITE

. . . picks up moisture faster and holds more moisture than any other refrigerant drier! Easy to install . . . easier to replace! Lower inventories — four drier sizes and seven fittings provide 28 combinations of installation.

MANUFACTURERS OF REFRIGERANTS, REFRIGERATION PRODUCTS, INDUSTRIAL AND FINE ORGANIC CHEMICALS, LIQUEFIED GASES, DRY CHEMICAL FIRE EXTINGUISHING EQUIPMENT.

ANSUL *Chemical Company*

REFRIGERATION DIVISION • MARINETTE, WISCONSIN

Circle No. 18 on Reader Service Card

NEW AMPROBE JUNIOR

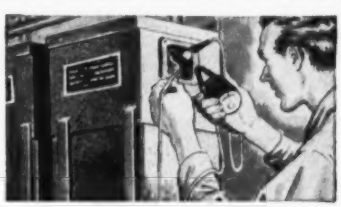
VOLT-AMP TESTER

$19.85
INCLUDING VOLTAGE TEST LEADS

ACTUAL SIZE

One pocket tester does the complete job

IT'S A SNAP-AROUND AMMETER
Measures current instantly without shutdowns or breaking of insulation for ammeter connections.



IT'S A VOLTAGE METER
Measures voltage quickly, accurately on a full-sized calibrated scale; eliminates guesswork.

Gives you tester ruggedness with instrument accuracy (within ± 3% of full scale)

PICK THE RANGE THAT FITS THE JOB:

MODEL "10": 0- 10 AMPS A-C 0-125/250 VOLTS A-C
MODEL "25": 0- 25 AMPS A-C 0-125/250 VOLTS A-C
MODEL "50": 0- 50 AMPS A-C 0-125/250 VOLTS A-C
MODEL '100": 0-100 AMPS A-C 0-125/250 VOLTS A-C

Now every service man can be equipped with this time-saving pocket tool. The Amprobe Junior pays for itself the first month alone by taking the guesswork out of installation and servicing jobs. When you "Amprobe" it, you get it right the first time and eliminate costly call-backs. Write today for Catalog No. 73, Pyramid Instrument Corporation, Lynbrook, New York (Export Division: 458 Broadway, New York 13. Cable: Morhanex).

IF YOUR JOB CALLS FOR A MULTI-RANGE AMPROBE:

AMPROBE "300"
0-6/15/30/60/150/300 AMPS AC.
0-150/300/600 VOLTS AC.
$49.50 COMPLETE WITH LEATHER CASE AND VOLTAGE TEST LEADS.

AMPROBE "600"
0-15/30/60/150/300/600 AMPS AC.
0-150/300/600 VOLTS AC.
$59.50 COMPLETE

AMPROBE "1200"
0-15/60/150/300/600/1200 AMPS AC.
0-150/300/600 VOLTS AC.
$67.50 COMPLETE

Circle No. 19 on Reader Service Card

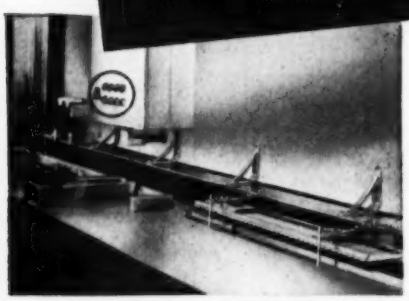
FREEZING EQUIPMENT SALES, INC.'s

Continuous Automatic Package Freezer

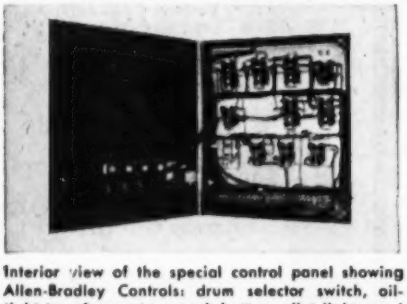
equipped with

ALLEN-BRADLEY TROUBLE FREE MOTOR CONTROLS

The continuous automatic package freezer for fast food freezing, shown above, is designed by the Freezing Equipment Sales, Inc., of York, Pennsylvania. Circles enclose A-B Motor Controls in panel, limit switches, manual switches, and push buttons.



Close-up view of the special control panel showing the Allen-Bradley Bulletin 353 Drum Selector Switch and the eight oiltight control units in the cover.



Interior view of the special control panel showing Allen-Bradley Controls: drum selector switch, oiltight transformer type push button, pilot lights, and selector switches in the cover; ten Bulletin 700 control relays within the cabinet.

Why are Allen-Bradley starters so popular for refrigeration and air-conditioning service? . . . because they are trouble free. Only ONE moving part. No pivots, pins, or bearings to corrode or stick...no jumpers to break. You install them...and forget them!

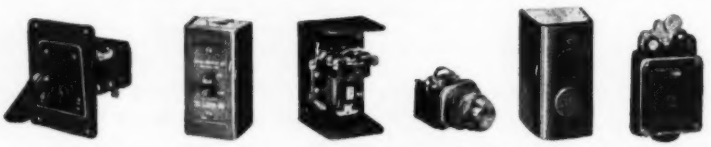
No contact maintenance . . . Allen-Bradley silver alloy contacts never need cleaning, filing, or dressing.

Dependable overload relays . . . Allen-Bradley thermal relays are accurate and always dependable . . . even after long service.

The Allen-Bradley trademark stands for millions of trouble free operations.

Allen-Bradley Co., 1340 S. Second St., Milwaukee 4, Wis.

Allen-Bradley Controls Used in This Freezing Unit



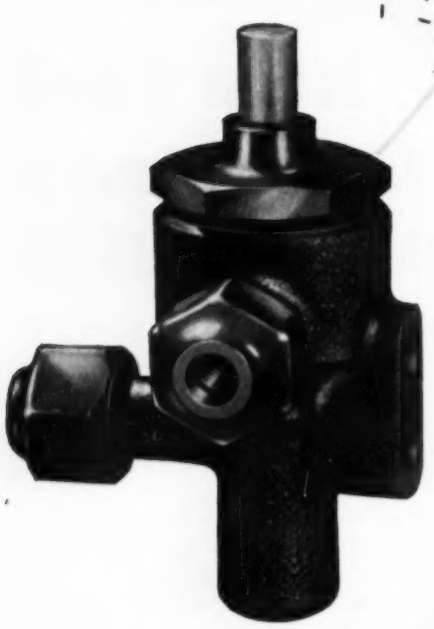
Drum Selector Switch | Manual Switch | Control Relay | Transformer Type Push Button | Push Button | Limit Switch

ALLEN-BRADLEY QUALITY MOTOR CONTROLS

Circle No. 20 on Reader Service Card


GENUINE FACTORY PARTS
Lehigh BLU-COLD
CONDENSING UNITS
Small shelf—Big stock...
WITH LEHIGH'S GREATER
INTERCHANGEABLE PARTS
Or, to put it another way, a $25 investment allows a Lehigh BLU-COLD wholesaler to carry Seals, Valve Plates and Gaskets for the entire BLU-COLD line from 1/4 H.P. thru 5 H.P. You must agree that this is not only a reflection of good engineering but a many sided advantage. Investment is smaller. Inventory is smaller. Less space is required. Turnover is more rapid (and percentage of profit!) Unit servicing is much easier and convenient.
Everybody wins!
THREE BASIC COMPRESSORS MAKE OVER 200 MODELS
with capacities from 870 to 70,000 BTU/Hr.
with over 50 generally interchangeable parts
A postcard will bring latest PARTS CATALOG or see your nearest Lehigh BLU-COLD wholesaler.
Lehigh BLU-COLD COMMERCIAL REFRIGERATION
WM—10F—1 H.P. Water Cooled Unit
Lehigh BLU-COLD
CONDENSING UNITS and SYSTEMS
Lehigh Manufacturing Co., Lancaster, Pa.
Division of Lehigh Foundries, Inc.
Export Dept. — 13 E. 40th St., New York 16, N. Y.
Manufacturers of Malleable and Grey Iron Castings • Refrigerating Equipment • Air Valves • Automatic Vending Machines

"ICE CIRCLES" ARE MADE AUTOMATICALLY WITHOUT TRAYS IN NEW *SERVEL* REFRIGERATOR



. . . AND MUELLER BRASS CO. VALVES HELP DO THE JOB!

You don't ever have to fill or empty ice trays in the new Servel home refrigerator. An automatic ice-making unit freezes ice cubes without trays and puts them in a basket ready for you to use.

As you use the ice cubes, the supply is constantly replenished by the automatic unit. Two Mueller Brass Co. water control valves (a mold inlet valve and a tank inlet valve) on the automatic ice-maker regulate the supply of water for the unit and help insure long life and efficient operation. • Mueller Brass Co. makes a complete line of valves, driers, strainers, liquid indicators, fittings and accessories for virtually every refrigeration need. Like the valves in the Servel Automatic Ice-Maker, these Mueller Brass Co. products help improve performance and provide lasting dependability in any commercial refrigeration system.

Your refrigeration wholesaler can supply you with Mueller Brass Co. products, or write us today for complete information

109

DRIERS AND FILTERS

WROUGHT COPPER FITTINGS AND COPPER TUBE

FLARE FITTINGS

LIQUID INDICATORS

VALVES

STREAMLINE Packless Line Valves are individual and multiple packaged in sturdy metal-edge containers.

Write for our latest catalog describing the complete line of Mueller Brass Co. STREAMLINE refrigeration products.

MUELLER BRASS CO. STREAMLINE PRODUCTS

MUELLER BRASS CO. PORT HURON 10, MICHIGAN

Circle No. 24 on Reader Service Card

KINNEY TWO-FOOT PUMP

SPECIFICATIONS

Free air displacement 2 cu. ft. per min. (57 liters per min.)

Absolute pressures down to 0.2 micron or better.

Compact: only 14-¾" long x 10-¾" wide x 13-¼" high.

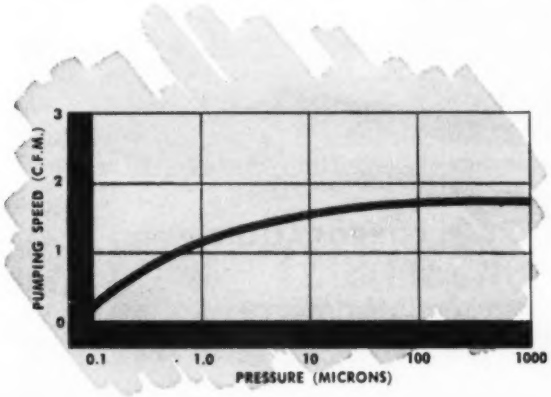
Motor: ¼ HP standard type.

Weight: pump only, 31 lbs.; complete unit, 70 lbs.

Kinney Vacuum Pump Model CVM 3153 is specially designed for laboratory projects, industrial installations, refrigeration service applications, or wherever a very compact pump of fast pumping speed is required. This is not a vane-type pump. Model CVM 3153 employs the famous Kinney rotating plunger mechanism, which is oil-sealed and does *not* depend on metal-to-metal contact for its pumping efficiency. It operates quietly and efficiently for long periods of time virtually without maintenance or attention. It's easy to service . . . no special tools are required.

Kinney Manufacturing Co. — manufacturers of vacuum and liquid pumps. Boston, New York, Chicago, Detroit, Cleveland, Atlanta, Houston, New Orleans, Charleston (W. Va.), Philadelphia, Pittsburgh, Los Angeles, San Francisco, Seattle, and foreign countries.

★ SUBSIDIARY OF THE NEW YORK AIR BRAKE CO. ★
Kinney



SEND COUPON

KINNEY MANUFACTURING COMPANY
3618 WASHINGTON STREET, BOSTON 30, MASS.

Please send Bulletin SV-51 giving full details on Model CVM 3153.

Name .....

Company .....

Street .....

City ..... State .....

Circle No. 25 on Reader Service Card

14 Million Tecumseh

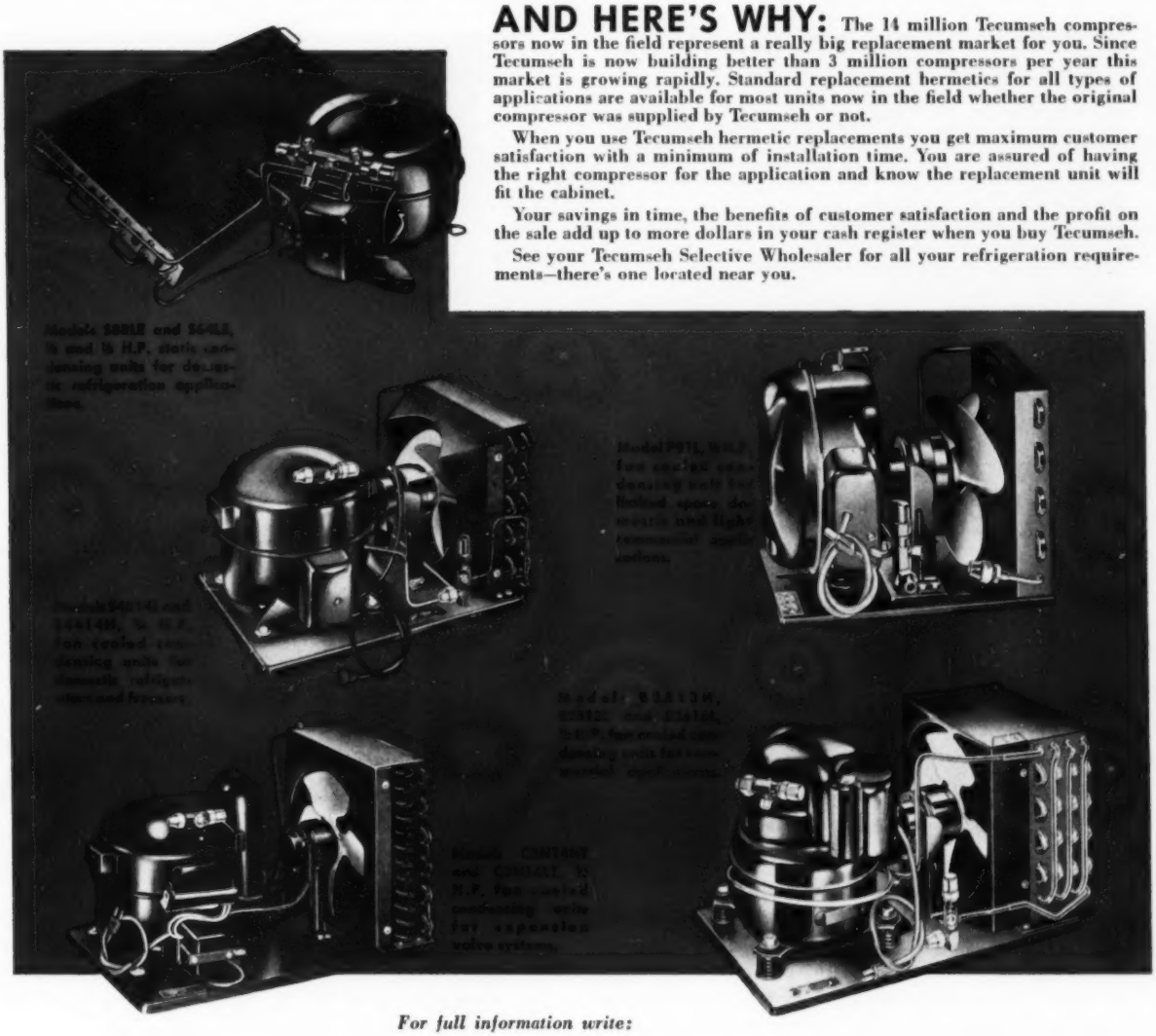
COMPRESSORS SHOULD MEAN $$ TO YOU . . .

AND HERE'S WHY: The 14 million Tecumseh compressors now in the field represent a really big replacement market for you. Since Tecumseh is now building better than 3 million compressors per year this market is growing rapidly. Standard replacement hermetics for all types of applications are available for most units now in the field whether the original compressor was supplied by Tecumseh or not.

When you use Tecumseh hermetic replacements you get maximum customer satisfaction with a minimum of installation time. You are assured of having the right compressor for the application and know the replacement unit will fit the cabinet.

Your savings in time, the benefits of customer satisfaction and the profit on the sale add up to more dollars in your cash register when you buy Tecumseh.

See your Tecumseh Selective Wholesaler for all your refrigeration requirements—there's one located near you.



For full information write:

TECUMSEH

TECUMSEH PRODUCTS
TECUMSEH, MICH. *Company*

EXPORT DEPT.: 2111 WOODWARD AVE., DETROIT, MICH.

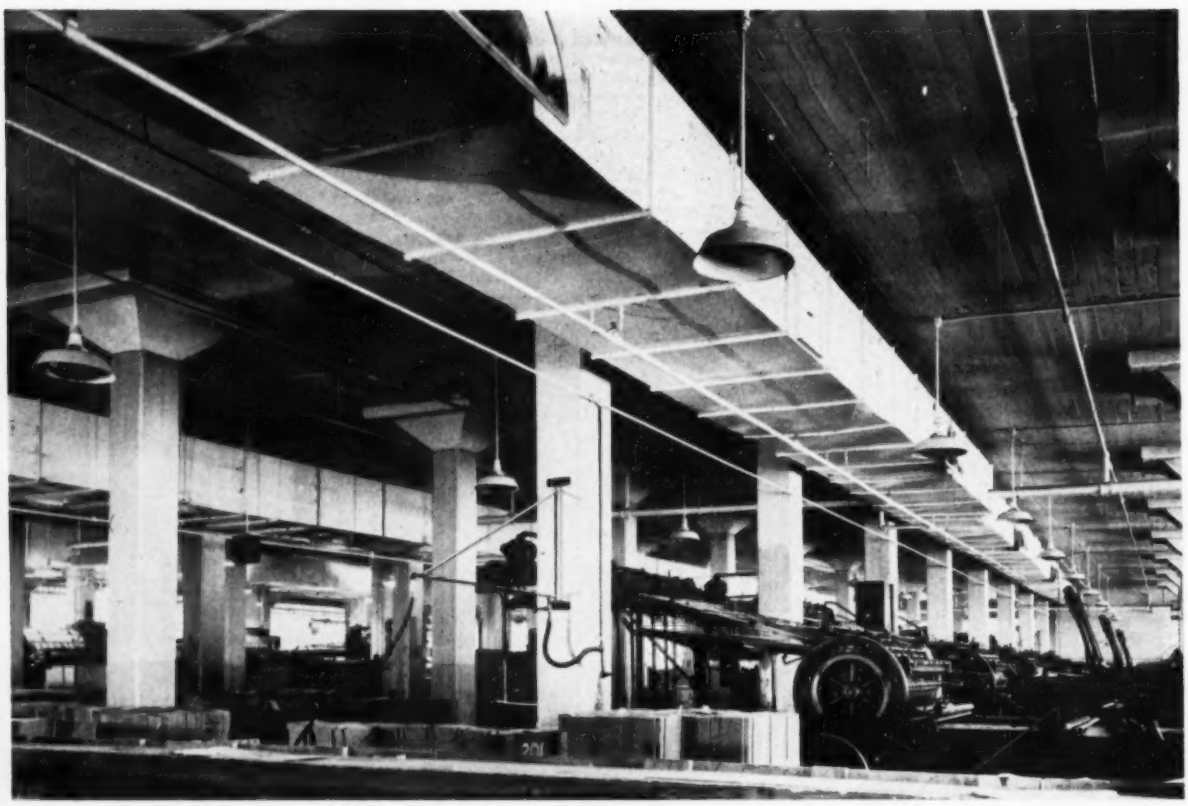
★ The world's largest producer of condensing units for the refrigeration industry. ★

Circle No. 27 on Reader Service Card

HOW AIR

PRODUCTION PROBLEM FOR

Modern installation points up



Interior of Printing Department of the Corn Products Refining Company showing arrangement of ducts and air diffusers.

Temperature and humidity control are of prime importance to almost every printing plant . . . be it a large commercial establishment or the comparatively small printing plant of the type operated privately by many industrial and business concerns. Typical example is the Printing Department of the Corn Products Refining Company in Argo, Illinois. The plant is equipped to handle the printing of 25 tons of paper requiring a ton of ink in a 16-hour period.

PRODUCTION PROBLEM

Because paper is naturally hygroscopic, printing-plant operators often find themselves faced with the necessity of controlling temperature and humidity conditions within working areas or risk shutting down the presses. This was the case in the Printing Department. Whenever temperature and humidity were too far off normal, their printing operation suffered. So . . . to eliminate the difficulty, a modern air conditioning system was installed.

AIR CONDITIONING SOLVED IT

To maintain year-round design conditions of 80° dry bulb, 67° wet bulb (equivalent to 80 per cent relative humidity), engineers recommended installation of two 75-ton Vilter VMC Compressors operating on Du Pont "Freon-12" refrigerant. These machines provide a total

CONDITIONING SOLVED

INDUSTRIAL PRINT SHOP

another profitable market

of 150 tons' capacity. Cooling is done by direct expansion with coils placed in the main plenum. A total of 70,000 cubic feet of air per minute can be put through the coils.

The system adequately serves the print shop located in a building 270′ x 130′ x 15′ with a floor area of 35,000 square feet and cubage of 500,000 feet of cooled space.

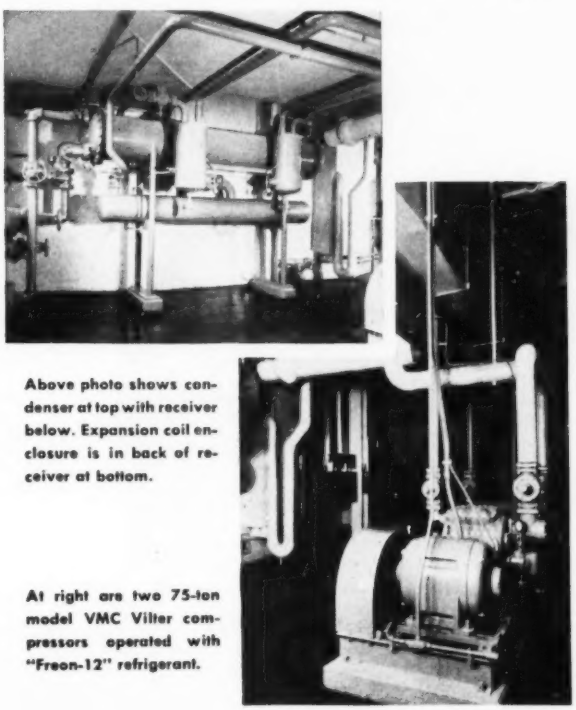
FLEXIBILITY A FEATURE

Since one unit of the installation produces sufficient cooling to meet average load requirements, the second unit is normally used only when peak loads become necessary. This flexibility in operating the system serves as additional insurance against any possibility of breakdowns.

GOOD MARKET FOR EQUIPMENT

What with mounting production costs in practically every branch of business and industry, scores of organizations have already undertaken the printing of their own catalogs, sales-promotional literature, office forms and other material. Many more are considering the idea. In almost every instance, conditioned air is required for the most efficient and economical operation of the plant.

So it stands to reason . . . here is still another promising market for air conditioning equipment of many different types. Some systems may be relatively small . . . others quite sizeable. But in any event, it should prove well worth the effort to make up a list of business houses and industrial plants in your own trading area, and to sound them out. Many may now have expansion programs that include a print shop. Talk with engineers, shop foremen, purchasing agents, advertising managers. You'll often line up many excellent prospective buyers.

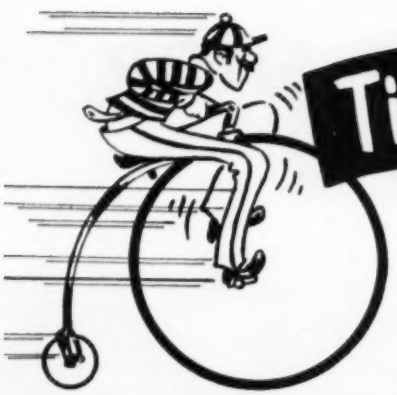


Above photo shows condenser at top with receiver below. Expansion coil enclosure is in back of receiver at bottom.

At right are two 75-ton model VMC Vilter compressors operated with "Freon-12" refrigerant.

Importance of "Freon" Refrigerants

Then, when you get around to discussing specific equipment for the systems being considered, remind your customer why it is so important to select machines operated with Du Pont "Freon" refrigerants. Explain that these refrigerants are entirely safe . . . nonflammable, nonexplosive, virtually nontoxic and of dependable, uniform quality assured by carefully controlled laboratory methods of manufacture. These are inherent qualities of "Freon" refrigerants that aid in prolonging the economical, efficient operation of air conditioning installations over long periods of time. In addition, of course, "Freon" refrigerants meet all building-code requirements. E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Delaware.



Time for a Change

These old "high wheelers" have long since been discarded in favor of modern, streamlined models. But not so with tube working tools. Many of these grand old workhorses are still being used—wasting time, precious labor, and profits.

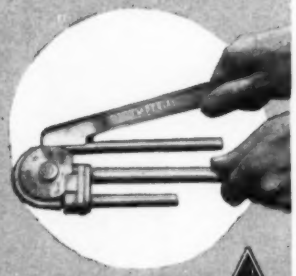
If you have any of these, now is the time to change to modern Imperial Tubing Tools—tools with ever so many important improvements that mean faster work, better installations, and money saved.

Not this . . . . . but this

Bill is still struggling with an old fashioned tube cutter. He should switch to the Imperial No. 274-F with its free wheeling ball bearing action, flare cut-off groove in the rollers, retractable reamer, and long lasting, efficient cutting wheel. For tubing ⅛" to 1" O.D. Other models to 2⅛" O.D.

Tools of yesteryear just can't make flares like those formed by the Imperial No. 500-F Rol-Air Flaring Tool. And its operation is a lot easier. It automatically burnishes flares to a high polish. Provides extra assurance against leakage. "Rolls flares in the air" to get stronger flares. Flares 6 sizes of tubing: 3/16", 1/4", 5/16", 3/8", 1/2", 5/8" O.D.

Puff! Grunt! Bending tubing with old time benders is no joke—it's a struggle every time. What a contrast to the modern Imperial No. 364-F calibrated, open side tube benders. Strong—yet light weight. Form smooth even bends to a short radius—any angle up to 180°. Individual bender for each size 3/16" to 3/4" O.D. Also gear type and combination benders.



Write for New Tubing Catalog No. 3011

See Your Jobber Today

IMPERIAL

THE IMPERIAL BRASS MFG. CO.
536 S. Racine Ave., Chicago 7, Ill.
In Canada: 334 Lauder Ave., Toronto, Ontario

FITTINGS • VALVES • DRIERS • CHARGING LINES • TOOLS for Cutting, Flaring, Bending, Pinch-Off, Swedging

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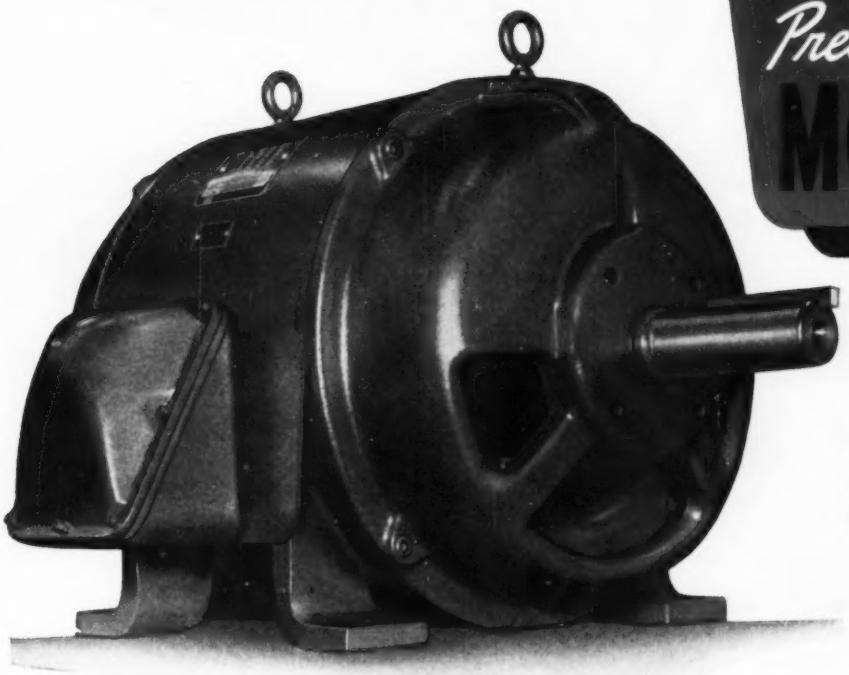
FOR FAN SERVICE...

"All motors are NOT alike!"

RELIANCE *Precision-Built* **MOTORS**

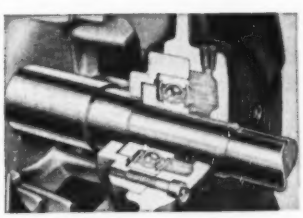


Reliance Protected Open A-c. Motor. All other standard enclosures available, with wide choice of mechanical designs and special mountings. Ratings from ¼ to 300 hp.

☆ Low starting currents... liberal ratings

☆ Smooth acceleration... quiet operation

☆ Tough, vibration-proof Reli-X insulation



...AND THE BEST PRE-LUBRICATED BEARING DESIGN

The Reliance pre-lubricated bearing provides *four times more operating hours without re-lubrication* than any other bearing used in motors today. And—whatever your lubrication schedule—*you just can't grease 'em wrong!* To get the complete "inside story" on motor bearings, write today for Bulletin B-2201. It contains hard facts on the advantages of the Reliance pre-lubricated bearing design, with cutaway view, cross-section diagram, comparison chart, and statements by bearing manufacturers. B-1458D

RELIANCE ELECTRIC AND ENGINEERING CO.

1076 Ivanhoe Road, Cleveland 10, Ohio • *Sales Representatives in Principal Cities*

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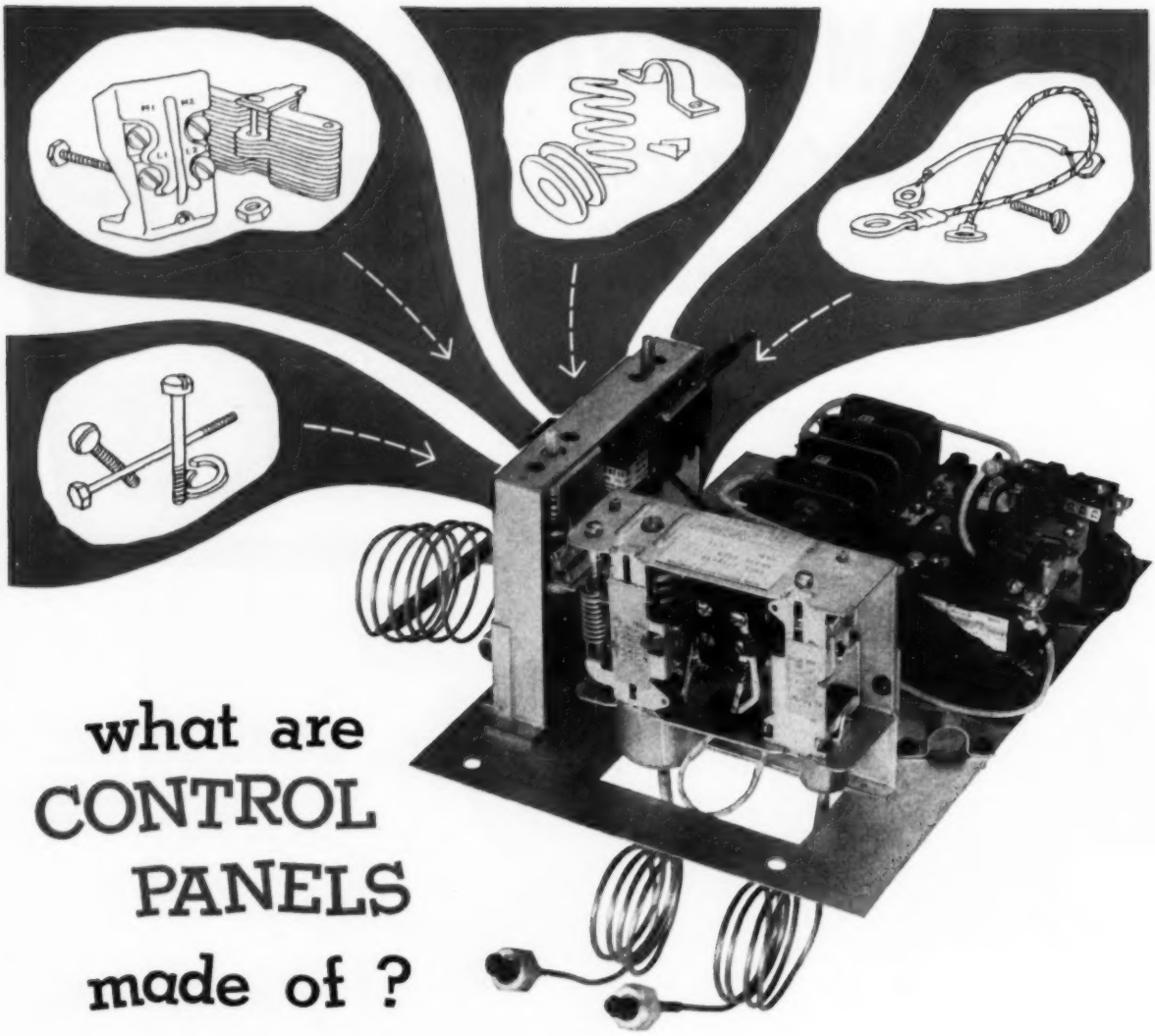


what are CONTROL PANELS made of ?

It takes more than line starters, selector switches, thermostats, pressure switches, transformers, and relays. It takes *specialized engineering know-how* in co-ordinating the functions of the component parts into an efficient, unitized control. That's what control panels are made of!

And it's the *big reason* more and more air conditioning manufacturers are bringing their control panel problems to Penn for perfect solution. Here are the advantages they get from Penn . . . one source for quality-designed, precision-built component parts . . . savings in production time . . . savings in wiring and labor costs . . . simplified wiring and installation for their field men . . . PLUS *better-satisfied customers!*

If you need better controls for air conditioning and refrigeration . . . do what so many leading manufacturers are doing . . . buy Penn! See your wholesaler or write **Penn Controls, Inc., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, N.Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.

PENN

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Circle No. 31 on Reader Service Card

BTU's NEWS · LAWS · TRENDS

THE SUN HELPS COOL the huge Pentagon building. Unique rooftop electronic sensing elements measure the heat of the sun beating down on the building to condition indoor temperatures to offset the heat. The control arrangement, developed by consulting engineer Charles Leopold in collaboration with Minneapolis-Honeywell engineers, measures the degree of solar heat the year round — via the electronic devices on the rooftop — subtracts it from the outside shade temperature, and applies the final temperature reading to the air conditioning system. The system then tempers air to the offices and public spaces. The Pentagon air conditioning is believed to be the world's largest. It totals 14,400 tons, as compared with 6,500 tons in Chicago's Merchandise Mart and 9,750 tons in Radio City, New York.

PRE-COOKED FROZEN FOODS served straight from the warming oven have proved successful in keeping forest firemen on the job. This was tried out recently by the U. S. Forest Service when it made a catering agreement with a full-meal frozen food company. No matter whether the meals are eaten "on the run" at the fire line or at leisure back at the base camp, the frozen meals are more convenient, attractive and have higher nutritive value, the Service reports. If men are fighting fires several miles from camp, the food is dropped in by parachute and stored in low-temperature lockers. Wrapped in foil, the food is heated in portable ovens.

NEW SHELF LIFE for lemons through use of refrigeration has been shown in a recent study made by the Agricultural Research Administration, USDA. The common practice among retailers has been to display lemons in dry racks at room temperature. However, tests at the Plant Industry Station show that lemons needs refrigeration and sprinkling to keep them fresh and attractive. When lemons were held at room temperature for a week or more, the skin dried out, the fruit shrank and got soft, and the button became discolored. On the other hand, display in a refrigerated case gave excellent results. These methods held the fruit at 37 to 42 F. Storage over-night in refrigerated space also was found helpful, where refrigerated display was not available.

AIR CONDITIONED FOOD STORES are in prospect for more than 4,000 United States establishments this year, according to a recent survey of its members made by the National Association of Retail Grocers. This is twice the number interested in air conditioning a year ago. The study revealed that about 4,200 members planned to build new food stores during 1953, in an $803 million modernization and building program that will top all previous years.

THE ARMY'S KEEN INTEREST in frozen foods and juices is indicated in a report by Robert M. Petersen in *Quick Frozen Foods* magazine of a recent tour of Army Food Service Schools and Quartermaster Market Centers, depots and other food handling installations. According to current estimates, total purchases by weight of frozen foods of all types represent 12 to 14% of the daily ration per 100 men. When it is considered that each man consumes an average of 4 to 6 pounds of food per day, the Armed Services become a most important customer for both frozen and fresh foods. Generally, bulk storage facilities were found adequate at the installations visited, but zero-storage facilities were virtually non-existent in unit mess halls. It was not uncommon, Petersen reported, to find frozen foods being stored at 38-40 F in unit mess halls. Here is a situation in which both the frozen foods and refrigeration industries can be of help — the former in showing on individual packages the recommended storage temperatures, and the latter in encouraging the development of adequate and proper storage facilities.

Meet *Mrs.* Sales Manager

By working "the head of the family" into his company's sales program, this commercial refrigeration distributor puts his salesmen on their mettle, and thus builds sales volume

DOES your wife rout you out of bed at 7 o'clock every morning, pour a quick cup of coffee down you, and then shoo you out of the house? And does she greet you every night with a query as to how many jobs you sold that day?

If not, then the chances are you're not a salesman for the Ray Winther Co., a San Francisco, Calif., distributor of commercial refrigeration equipment and store fixtures. For Ray Winther, the boss of this enterprising organization, has figured out a new way to get real sales mileage out of that old saw, "Never underestimate the power of a woman."

Just how does this plan work? Well, in effect the company has enlisted the aid of every salesman's wife as an "assistant sales manager". Here is the gimmick:

Enter Friend Wife

Each salesman is set up on an annual sales quota which is in turn broken down into monthly quotas. In order to count toward any month's quota a sale must actually be delivered, installed, and consumated.

Every month a sales report showing the percent of quota attained by each salesman is sent not to the salesman but to his wife. Each month that a salesman exceeds his predetermined quota, the company issues a $25 merchandise certificate, payable to the wife, on one of the finest ladies' apparel stores in the San Francisco Bay area.

The monthly sales report, showing the dollar volume of sales in relation to quota for that month, is sent to each salesman's wife, whether or not the merchandise certificate is earned. If the merchandise certificate has been earned, it is attached to the sales report. If not, the salesman's wife can quickly see why. And it's a safe bet that hubby will be more on the ball next month!

"In effect," Winther explains, "this plan actually puts each salesman's wife on the payroll as an 'assistant sales manager'. And the

plan worked so well when we first tried it last year that we are continuing it again this year.

"Some of our salesmen's wives received as many as eight of these merchandise orders last year, and you can bet they are counting on receiving just as many in 1953.

"The sales reports which we send out use a drawing of a thermometer as a visual indicator of monthly sales achievement. The body of this thermometer is filled in with red pencil up to the point representing each salesman's actual sales for that month.

Sales Reports Sent Home

"This report is sent to the salesman's home with the merchandise order if his sales have gone 'over the top', or without the order if his sales have lagged below quota. In either case, the wife has a definite report of the progress her husband is making.

"This incentive plan has proved to us that it serves two purposes," Winther reports. "In the first place it has the tendency to enlist the complete cooperation of the wife in the necessity of her husband having to make evening and weekend calls, which in many instances may conflict with the social life of the salesman's family. And in the second place it has a tendency to offset any rosy reports which the salesman may convey home as to his actual value to the firm and the volume of business he produces.

Salesmen "On the Spot"

"In the final analysis, this incentive program is simply a method of giving the salesman's wives a little something extra for the effort which their husband's are putting forth. By so doing, it creates additional incentive for the salesmen, and plus business for the firm.

"Very honestly," Winther admits, "this program really puts our salesmen on the spot. Some of them might be inclined to resent this pressure, except for the fact that this little stunt really does result in more sales. And needless to say, the more any salesman sells the more money he makes, both for himself and for the company. So in the long run, everybody is happier."

ON-THE-JOB signs like this build business for a Texas contractor.

Signs of Success

TAKING the anonymity out of each major refrigeration or air conditioning job being installed, and doing it by means of colorful, interesting signs, is a productive short-cut to still more contracting calls, according to Herbert M. Kay, head of the Kay Co. in Waco, Tex.

Kay, who during the past five years has been responsible for some of the most unusual installations in central Texas, feels that the contractor is making a serious mistake by not identifying himself thoroughly to the public through every step of the job.

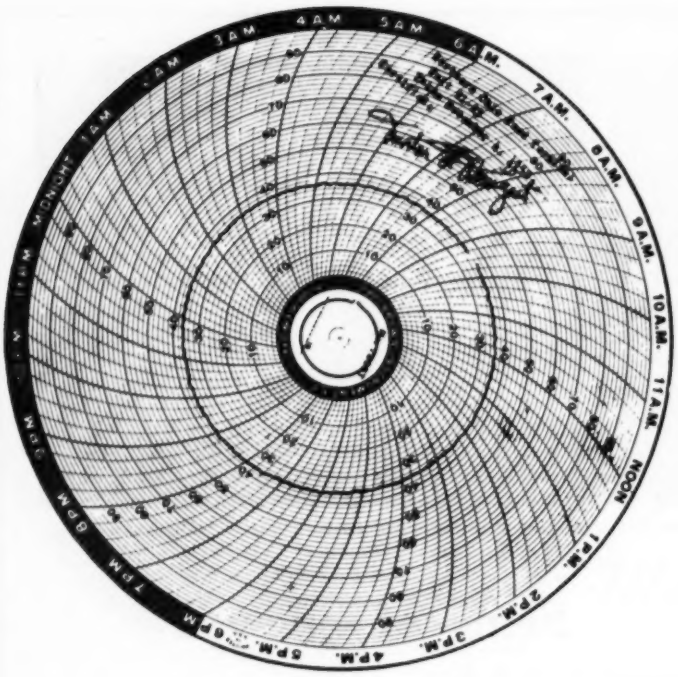
"There are countless instances," he declares, "in which a businessman has visited a new store or factory being built and remarked to himself about the neatness of the air conditioning or refrigeration control panels, etc., making a mental note to ask who was responsible." "Chances are, however, that as time goes by he will forget about it — and the result is that the contractor has lost a potential future job."

To obviate this possibility, Kay completely identifies every major job. Almost as soon as the ink dries on the contract, he makes arrangement for elaborate "story-telling" signs, which will be in place on the project as long as the Kay Co. is on the job.

Signs are ordered through a local sign shop. They are well constructed on heavy legs, always framed, and done in three or more colors. The meticulous lettering, the use of many colors, and the framing, of course, result in signs which cost anywhere from twice to five times as much as standard varieties, but Kay feels that the expense is well rewarded.

"There are several considerations," he explains. "First, unless the sign is such that it will actually lend eye-appeal to the property rather than detracting from its appearance, the customer may not care for its use. Second, most people will not take time and trouble to read a crudely lettered, unattractive sign. Third, we want each sign to be representative of our type of work, and for that reason it must carry the impression of neatness, efficiency, and thoroughness at a glance."

Needless to say, posted at a busy intersection or on a heavily trafficed thoroughfare where thousands of cars pass daily, this type of sign firmly impresses passersby with the work of the firm.



CONSTANT TEMPERATURE control, as indicated on this 24-hour chart, plus the positive protection against complete refrigeration failure which is offered by a "duplex" arrangement, are powerful arguments in support of the contention that . . .

TWO SYSTEMS are better than one

POSITIVE assurance of constant cooling conditions is the key to the "duplex" type of refrigeration system now being installed for many applications by Refrigeration Sales Corp., Cleveland, Ohio, contracting firm.

This duplex system, as developed by Hugo C. Smith, manager of the company's commercial department, actually is two separate refrigeration systems, each with its own compressor, both of which are operated through identically set pressure controls. These two systems operate relatively independently of each other. Fans on both systems are set to run continuously.

While adaptable to many types of jobs, these duplex systems have proved particularly valuable to wholesale meat and produce handlers, in whose operations severe product loading is the rule rather than the exception. They are especially applicable to the field of frozen food warehousing, where an entire load can be lost if the temperature of the cooler rises above freezing.

In the field of wholesale food handling, Smith points out, the day of single cooler operation is gone. Multi-temperature installations are now common, and operators are becoming increasingly temperature conscious. In fact, he observes, it is not uncommon today for a contractor to receive calls from his customers in this field to correct temperature discrepancies of as little as 2 degrees F, whereas just a few years ago variances many times that great went completely unnoticed.

The duplex arrangement, with its two separate, balanced compressor systems, provides a practical and effective means of providing this close temperature control, in addition to offering positive insurance against complete refrigeration failure.

The flexibility of the duplex system makes it possible for the system to handle a higher peak produce load and still maintain fairly even conditions under minimum product and usage load. Due to the close temperature control provided, the amount of dehydration in produce stored is practically negligible.

In figuring the compressor capacity required for these duplex installations, Smith determines the heat loss, lights, and usage load factors in the usual way. Then adding to this the maximum product load anticipated he arrives at the total load to be handled.

The next step is to specify two compressors of equal size whose combined capacities will more than equal the maximum total load requirements, rather than a single compressor unit of comparable capacity.

Smith deliberately sizes all these jobs on the heavy side, so that they will be adequate to handle the heavy usage he knows they will receive. He also deliberately over-coils such

jobs to insure the maintenance of desirable humidity conditions.

As mentioned previously, in a duplex system the pressure controls on the two condensing units are set identically. Let's assume, for instance, that the controls on both the No. 1 and No. 2 compressors are set for 35-lbs, cut-in and 20-lbs. cut-out. The No. 1 compressor then automatically commences operation the moment that the pressure rises to 35 lbs. At this point the pressure of the No. 2 compressor usually is 34½ lbs. The cooling effect of compressor No. 1 then pulls the back pressure on compressor No. 2 down to 33 lbs.

Maintenance of this 2-lb. pressure differential between the two units means that as little as three skids of warm produce added to the cooler load will automatically cut in the second compressor. Should either compressor shut off because of equipment failure, this fact is immediately obvious because the temperature inside the cooler will immediately rise 3 degrees F.

Because of the manner in which the pressure controls are set, automatic reversing of the stand-by compressor is provided, so that each unit receives equal wear.

The duplex system completely obviates the detrimental effects of short cycling which would occur under light load conditions if a single larger unit were used on the same installation.

Generally the duplex system costs somewhat more than would a single compressor system of comparable capacity, but the advent of the mass-produced hermetic compressors in the larger sizes has made the duplex arrangement feasable from a cost standpoint.

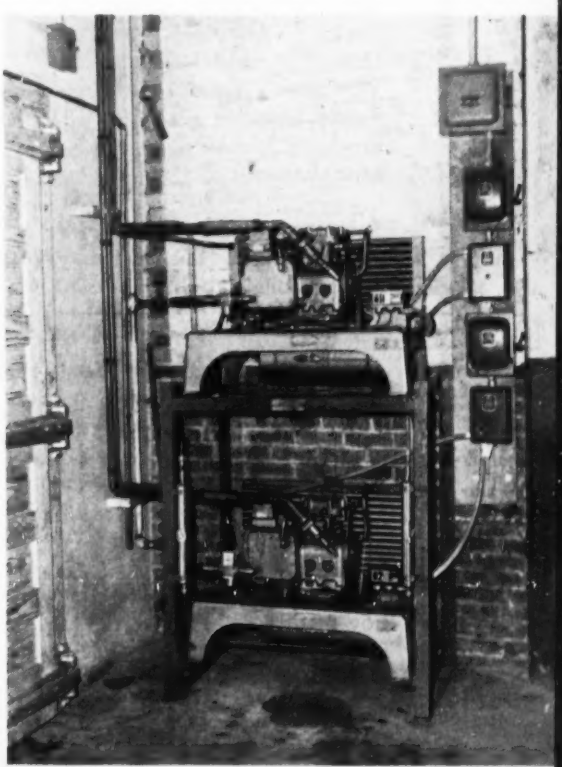
Smith encounters little difficulty in selling the duplex system to even the most cost-minded customer, at prices ranging from 25 to 50% above competitive bids, once he dramatizes the advantages of the two-compressor installation. The twin sales points of constant temperature maintained within plus or minus ½ degree around the clock, and the positive protection against produce loss as a result of refrigeration failure are usually enough to turn the trick with a minimum of argument.

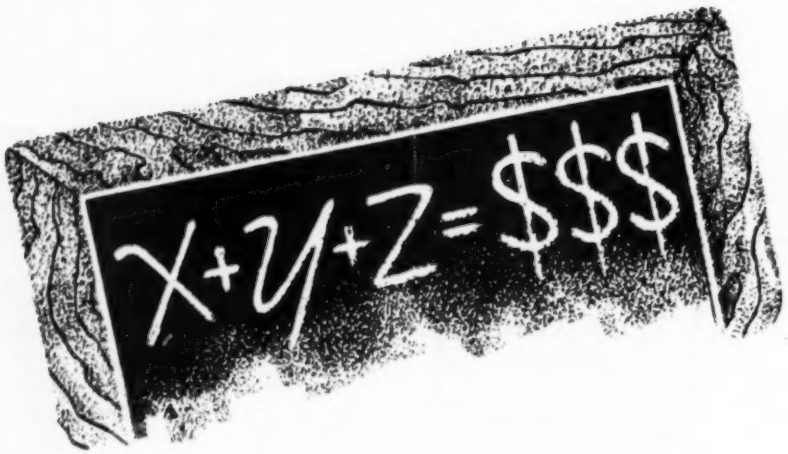
When you point out to the prospect, Smith observes, that an additional investment of less than $1000 on his initial installation will give him absolute insurance against a possible loss of $10,000 or $15,000 as represented by a cooler full of perishable produce, even the most hard-headed merchant starts reaching for the order blank.

There are no practical limitations to the size of job on which this duplexing principle can be employed. For instance, Refrigeration Sales Corp. recently completed the remodeling of a large market having 14 large cold storage rooms, some as

Continued on page 62

TWIN COMPRESSORS AND TWIN COILS are the key to the duplex system. The installation pictured here handles a heavily used cooler for Ferens Produce Co.





a simple formula for assuring SERVICE PROFITS

Basic Wage for the Serviceman		**100%**
To arrive at cost for doing service work, add the following costs:		
Social Security	1½%	
Unemployment Insurance	3%	
Workmen's Compensation	1½%	
Public Liability & Property Damage	1%	
Products Liability	1%	
Miscellaneous	1%	
Total Insurance		9%
Welfare Fund (this cost may vary)		3%
Automobile Expense		8%
		120%
Office Overhead: rent, heat, electricity, phone, clerical, advertising, bad debts, etc. — 43% of the above 120%		51.6%
		171.6%
Unapplied Time — Add 10%		17.16%
		188.76%
Gross Profit (10% markup equals 9% net profit)		18.88%
Total Cost to Contractor for Doing Service Work		**207.64%**

HOW much should you, as a contractor or as the head of a refrigeration and air conditioning service organization, charge for service so that you can be assured of a profit?

This is a question that has probably plagued men who head up refrigeration and air conditioning organizations ever since the first one was established, many years ago. By the same token, it's probably a question that nobody will ever answer to the complete satisfaction of everybody who's in the business.

The anwer to this question, of course, will vary, from city to city and from contractor to contractor—no two firms, it's an almost safe assumption, have expense problems which exactly duplicate each other. But so many "extra" costs have come into the picture, especially in recent years, that it has become an increasingly tough problem for the man who's the head of the business to figure out how to break even on his service operation, to say noth-

ing of trying to make a modest profit on this segment of the business.

Every successful operator of a refrigeration and air conditioning service or contractor business has long since got into the habit of using a pretty sharp pencil in figuring his service charges. He'd not be in the business very long if he didn't "wise up" to at least the major items of his cost situation.

Watch "Hidden" Costs

The fact remains, however, that a surprisingly large number of contractor and service firms continue to get along without knowing too much about all of the many "hidden" costs that must be added to the serviceman's basic wage if the service operation is to finish up the year out of the red.

In an effort to show what these "hidden" costs are in the service operation, a survey has been made recently by the Chicago Refrigeration and Air Conditioning Contractors Association, an affiliate of the national RACCA organization.

According to this study, if a contractor or service organization is to make a profit on its service work, it must charge *more than double* the wages that are originally paid to the service mechanic.

The table which accompanies this article shows just how the ultimate service charges are arrived at. In the opinion of RACCA members who have studied it, it might well serve as a guide for contractors and service organizations everywhere.

Sharp Pencil Needed

The table assumes that the basic wage equals 100%. The total cost to the contractor (or service organization) for doing the service work totals 207.64%.

This percentage, it is important to remember, will vary in different areas, but all of the basic individual items of cost that must be added to the basic wage are included, no matter what the area. Thus, the percentages shown here are sound to add in virtually any territory.

The table shows, for example, that to the serviceman's basic wage must be added insurance (for a total of 9%); welfare fund payments

Continued on page 61

THIS WINDOW COOLER, a ¾-ton unit, played an important part in the conversion of a local transit bus into a comfortable and efficient field office for a Florida construction company.

Comfort in the Field

WHEN a construction firm launches a project of any size it is necessary to conduct a lot of office work right on the spot. For years it has been customary to use a hastily erected frame shack for the housing of on-the-job records and personnel. During the summer months these shacks are veritable sweat boxes in any part of the country, and in Florida they are almost unendurable.

Patrick Lyons, president of Lyons Construction Co. of Miami, has hit upon a profitable and comfortable solution to this problem. He purchased an obsolete bus from a local transport company and went to work on converting it into an ideal field office.

All seats except the driver's were removed, and asphalt tile flooring was installed. Light plywood furniture was built in for desks and filing cabinets.

Interior was painted a light green and outside was painted white and windows equipped with awnings. Neon lighting was put in for night work. Comfortable chairs and a lounge for visitors completed the office and provided it with an atmosphere as pleasant as any downtown.

The final — and most important — touch was the installation of a ¾-ton room air conditioner in one of the bus windows.

The result is a field office with a smart business-like atmosphere and year-around comfort. Lyons believes this innovation already has paid for itself with improved quality and quantity of work done by himself and his staff.

Total cost of the bus and the expense of equipping it was little more than that of a couple of the ordinary frame shacks, and he now has a comfortable, permanent office which can be readily moved from one job to another under its own power, thus eliminating the delay involved in moving office equipment and records every time a new job is started at a different location.

about PEOPLE

James A. Norris has been placed in charge of the Los Angeles office and warehouse and the Southern California and Arizona territories of Imperial Brass Mfg. Co. He will be assisted by **Chester Weinert.** Norris was formerly with Kerotest Mfg. Co., where he was sales manager of the refrigeration division.


J. A. Norris

•

Leon S. Bush and **W. H. Mitchel** have been appointed to the sales staff of A. J. Nelson Co., mountain states sales representative for Kramer Trenton Co. Bush will cover the territory of Utah, Idaho, western Montana and Arizona. Mitchell's territory includes Colorado, New Mexico, El Paso, Texas; western South Dakota, western Nebraska, Wyoming and western Montana.

•

R. T. (Dick) Marshall has been appointed southern divisional sales manager for Williams Div., Eureka Williams Corp. Marshall will maintain headquarters in Dallas, Tex., and his territory will include southern California, New Mexico, Arizona, Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Alabama, South Carolina, Georgia and Florida. Marshall was formerly district manager in Dallas, and regional manager in the Dayton, Ohio, area for Chrysler Airtemp.

•

Robert E. Davis has been appointed manager of the St. Louis regional office and **Peter J. Dalton** has been named manager of the Detroit sales region for Airtemp Div., Chrysler Corp. Davis is a 20-year veteran in the air conditioning industry. He has been connected with production, sales and service capacities in both manufacturing and retail sales fields. He was formerly manager of the Chattanooga, Tenn. and Miami, Fla. district offices in the Atlanta sales region. Dalton replaces Jerome A. Clarke who moved to the Dayton plant. He joined Airtemp last year as field engineer in the Dayton region. Prior to joining Airtemp, Dalton was associated with air conditioning, refrigeration, and marine engineering.


R. E. Davis


P. J. Dalton

•

Victor W. Smith has been appointed production manager for Bush Mfg. Co. He was formerly with C. V. Hill Co. as chief engineer. He is the holder of several basic refrigeration and air conditioning patents.

Sam E. Gewin has been appointed St. Louis district manager of Bristol Co. For the last five years he has been resident sales engineer in the Buffalo area.

•

Richard K. Achberger has been appointed a sales manager for Fedders-Quiggan Corp. in the Cleveland district. His headquarters will be located in Lexington, Ky. Achberger was formerly merchandise manager of Tafel Electric & Supply Co. of Lexington. Previously he was with Mid-State Pharmacal Co., Bedford, Ind.

•

Kell T. Todd has joined Kennard Corp. as plant manager. Todd's background has been primarily in the automotive industry. He is a graduate of Washington University, St. Louis, in engineering and factory management.

•

Truman E. Laningham and **Jack Triche** have been appointed field representatives for Eston Chemicals Div., American Potash & Chemical Corp. Laningham, former entomologist at the Shell Agricultural Laboratory, will be in Eston's basic chemical department in Northern California. Triche will be in charge of the refrigerants distribution branch at St. Louis, serving Missouri, Kansas and Southern Illinois.


L. T. Laningham

•

Harry L. Williamson Jr. has been appointed manager of marketing of General Electric Co.'s heat pump department. He was formerly

Continued on page 57

get Chase® copper refrigeration tube

What could be handier than a 50-foot coil of dehydrated Chase Copper Refrigeration Tube! It comes in all standard sizes from ⅛" to ⅝" and is packed in individual boxes and cartons (¾" diameter is supplied in bulk).

Chase Refrigeration Tube has a uniformly soft anneal so that it can be easily bent. Its flat, double-layer coil makes it compact. Saves space in shipping and storing.

Write today for Free illustrated Book on Chase copper tube and solder-joint fittings for refrigeration and air-conditioning.

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The Nation's Headquarters for Brass & Copper

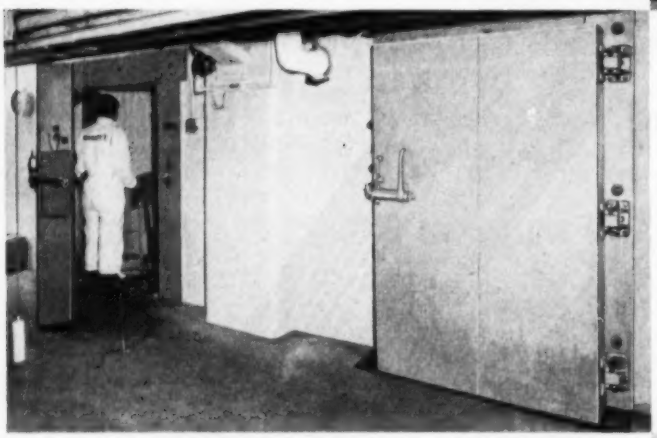
Albany†	Cleveland	Kansas City, Mo.	New York	San Francisco
Atlanta	Dallas	Los Angeles	Philadelphia	Seattle
Baltimore	Denver†	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Providence	
Chicago	Houston	Newark	Rochester†	(† sales office only)
Cincinnati	Indianapolis	New Orleans	St. Louis	

Circle No. 32 on Reader Service Card

JAMISON doors really hold up under hard usage

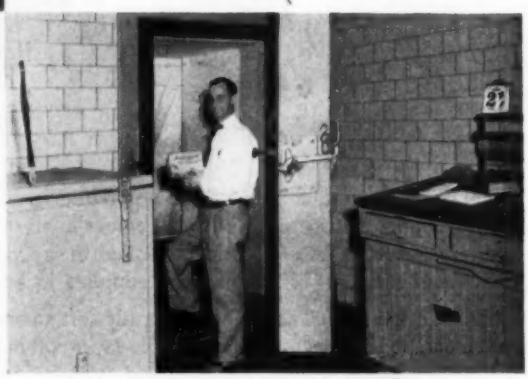
— reports Hershey Creamery Co.

The Hershey Creamery plant in Harrisburg, Pa., produces over 32,500,000 pint packages of ice cream a year—the world's largest producer in this size. Cold storage rooms in the plant get hard daily use. The plant superintendent, H. E. Sauers, in commenting on storage room traffic said: *"We are well pleased with the way the Jamison Doors stand up under the extreme usage they get in our plant."*



PACKAGE STORAGE ROOM. Jamison Metal Clad Super Freezer Doors maintain a tight seal at all times in these 25° below zero rooms. Positive seal makes refrigeration more efficient by preventing frost from accumulating on refrigeration coils. Thickness of insulation in doors equals that of walls.

PLATFORM BULK STORAGE ROOM. 2½ gallon packages of ice cream are stored in this 30° below zero room. Patented Super Freezer Fastener on metal clad door is most efficient fastener available for doors of this type. H. E. Sauers, Plant Supt., is keeping door in check.



FRUIT STORAGE ROOM. A Jamison Standard Door is used for this room storing fruits and flavors of all types. Temperature of room is held to 40° above zero. Completely metal clad doors insure maximum sanitation and simplify cleaning operations.

JAMISON

HAGERSTOWN, MARYLAND, U. S. A.

The leader for over 50 years

Circle No. 33 on Reader Service Card

NEWS OF THE INDUSTRY

BUSH MFG. CO. BUYS HEAT-X-CHANGER

Bush Mfg. Co. of West Hartford, Conn., manufacturer of air conditioning, refrigeration, and heating products, has purchased Heat-X-Changer Co., Inc. of Brewster, N. Y. The New York concern thus becomes a wholly-owned subsidiary of Bush.

Founded by Cecil Boling, now president of both firms, Heat-X was incorporated in 1945. The company manufactures liquid coolers, heat exchangers, condensers, intercoolers, aftercoolers, and other types of heat transfer products.

The firm employs 120 people at its Brewster plant. Since its incorporation, the company has shown a steady growth in volume and currently has a substantial backlog of orders.

In a notice to stockholders prior to purchase, Bush board chairman James W. Hatch reported that the acquisition of Heat-X-Changer will not only increase substantially the consolidated assets of Bush, but also is expected to improve future earnings.
other types of heat transfer products.

HOUSEMAN MANAGES G-E TRENTON PLANT

K. F. Houseman has been appointed manager of manufacturing of General Electric Co.'s new home heating and cooling plant in Trenton, N. J. Prior to his new appointment, Houseman was manager of plant and division services at the company's jet engine plant in Evandale, Ohio.

The home heating and cooling department, with headquarters in Bloomfield, N.J., recently took over a 300,000 sq. ft. plant in Trenton.

JUNE SALES SET ALL-TIME RECORD

Frigidaire Div. of General Motors has reported that sales of air conditioning and commercial refrigeration equipment during the first six months of 1952 were at an all-time high, 53% above the first half of 1952. For all products, the company reported that June sales this year were the highest in the company's history.

TWO NEW McINTIRE AGENCIES NAMED

McIntire Co. has recently appointed the following representatives: I. H. Cohler Co., 510 N. Dearborn St., Chicago, to cover Illinois, Wisconsin, Minnesota, Iowa and St. Louis, Mo.; Mason Emanuels Co., 90 Dearborn St., Seattle, to cover Oregon, Washington and British Columbia.

206 FIRMS SIGNED FOR SHOW SPACE

The most recent figures available indicate that the 8th All-Industry Refrigeration and Air Conditioning Exposition, scheduled for Nov. 9-12 in Cleveland, will be a sell-out. Already 206 exhibitors have contracted for space in the Show, as compared with 170 exhibitors in the 1951 Show.

At last report, only 21 exhibit spaces were unsold. If these are sold by the time the show opens, this year's exposition will be at least 10% larger than the last one.

To promote attendance at this year's show, stories are being sent to some 1,200 publications covering industries in which refrigeration and air conditioning equipment is used. Many key executives from these fields are being invited to attend the event.

Continued on page 44

GROCER STORES ANTI-POLIO SERUM

A REFRIGERATED MEAT COOLER owned by grocer Coit Barber of Lenoir, N. C., was used to store an emergency shipment of Gamma Globulin, the anti-polio serum which was flown to the city in an attempt to halt a polio epidemic threatening the area. Enough of the child-saving serum to inoculate 10,000 children was stored in the cooler until mass inoculations could be started. (A-P Wirephoto)

6-MO. ROOM COOLER SHIPMENTS UP 215%

Manufacturers' shipments of room air conditioners for the first half of 1953 indicate an increase of 215% over the same period of 1952, it has been announced by the Air Conditioning and Refrigeration Institute of Washington, D. C. At this rate, 1953 shipments will exceed one million units, compared with a total of 365,451 units for 1952.

Acceptance of the room air conditioner by the public as a means of greater comfort, health, and efficiency in the home, plus its ready adaptability to small offices and shops, is reflected by the fact that the increase in shipments by manufacturers for 1953 will be about 11 times as much as in 1949, four years ago.

"People are buying more and more of the larger sizes, with the three-quarter-ton room air conditioner proving by far the most popular model," says George S.

Continued on page 46

IDEAL JUNE-JULY SALES GAIN 70%

June and July sales for Ideal Cooler Corp., St. Louis, were slightly above 70% ahead of the same months of last year, reports Louis Weiss, president.

Ideal, which manufactures both draft and bottle type beverage coolers, overhauled its production facilities in the spring of 1953 and considerably enlarged production capacity and office space. Weiss says his company now plans a further major expansion "so that we can take care of new customers as well as handle the increased demand from our present dealers."

MUELLER BRASS IN NEW L.A. BUILDING

Mueller Brass Co. has moved warehouse stocks for the Los Angeles area into a new building at 3213 E. 44th St., Los Angeles. The building, containing 20,000 sq. ft. of floor space, has provisions for customer parking and indoor dock level truck loading. T. A. Howard, district sales manager, and G. M. Hunter, sales representative, also have officers in the new structure. Warehouse manager is J. K. Breakie. The new warehouse will serve customers in Southern California, southwestern Nevada, Arizona, and New Mexico.

HUMPHREYS DIRECTS ASHVE RESEARCH

Clark M. Humphreys has been appointed acting director of research for ASHVE by the Council at the semi-annual meeting in Denver, Colo., upon recommendation of the committee on research. Since 1945 Humphreys has served as senior engineer and recently has supervised work on the Human Calorimeter and construction of the environment and odor rooms.

FREEZ KING ADDS 96 DISTRIBUTORS

In a drive for additional distributors, started last January by Freez King Corp., the manufacturer has acquired 96 distributors. Alvin D. Rose, general sales manager, announced that as a result of this distributor expansion, Freez King now has distribution in all 48 states plus distributors in Cuba, Venezuela, Columbia, Puerto Rico, the Dominican Republic, Mexico and Alaska.

USAIRCO NAMES OUTLET IN TENN.

Lamson & Associates, Nashville, Tenn., has been apppointed distributor for window type room coolers in three southern states by United States Air Conditioning Corp. The firm, formed recently by J. C. Lamson, will cover Eastern Tennessee, Georgia and Florida.

SHOW . . .

Continued from page 43

A combined pre-registration form and invitation has been developed as another means of promoting attendance. These are available to exhibitors in lots of 500, without charge, with additional quantities furnished at cost.

W. A. Siegfried, chairman of the show committee, has again urged all those planning to attend the show to make hotel reservations as early as possible. Requests should be addressed to Mrs. Louis Perkins, Housing Director, 8th All-Industry Exposition, 511 Terminal Tower, Cleveland, Ohio.

Most recently available list of exhibitors is as follows:

Ace Cabinet Corp.; Acme Industries, Inc.; Admiral Corp.; Air Controls, Inc.; Airseco Mfg. Co.; Ajax Corp.; Alco Valve Co.; Allen-Bradley Co.; Allied Chemical & Dye Corp.; American Air Filter Co., Inc.; American Brass Co.; American Coils Co.; American Gas Machine Co.; Aminco Refrigeration Products Co.; Ansul Chemical Co.; A-P Controls Corp.; Arrow Hart & Hegeman Electric Co.

Bailey & Perkins Co.; Baker Refrigeration Corp.; Bally Case & Cooler Co.; Baltimore Air Coil Co., Inc.; Barkow Mfg. Co.; Belgian Electric Sales Corp.; Bell & Gossett Co.; Betz Corp.; Binks Mfg. Co.; Bohn Aluminum & Brass Corp.; Bonney Forge & Tool Works; Brewer-Titchener Corp.; Brunner Mfg. Co.; Bryant Heater Division; Bundy Tubing Co.; Bush Mfg. Company.

Carbonic Dispenser, Inc.; Carver Pump Co.; Century Electric Co.; Chase Brass & Copper Co., Inc.; Chemical Solvent Co.; Chrysler Corp.; Airtemp Div.; Coldin Cabinet Co., Inc.; Consolidated Vacuum Corp.; Copeland Refrigeration Corp; Cornelius Co.; Cory Corp., Div Fresh'nd Aire Co.; Curtis Refrigerating Machine Div.

Daffin Mfg. Co.; Davison Chemical Co.; Dayton Rubber Co.; Dean Products, Inc.; Delco Products, Div. General Motors Corp.; The Deming Co.; Detroit Controls Corp.; Dole Refrigerating Co.; Dun & Bradstreet, Inc.

Ebco Mfg. Co.; Electric Auto-Lite Co.; Emmerson Electric Mfg. Co.; Eston Chemicals Div., American Potash & Chemical Corp.; Evans Mfg. Co.

Fedders-Quigan Corp.; Federal Refrigerator Mfg. Co.; Flexonics Corp.; Fogel Refrigerator Co.; Foster Refrigerator Co.; Friez Instrument Div., Bendix Aviation Corp.; Frigid Igloo Mfg. Co.; Frigidaire Div., General Motors.

Gates Rubber Co.; Gem Refrigerator Co., Inc.; General Controls Co.; General Electric Co.; Glenco Refrigeration Corp.

Halstead & Mitchell; Harris Refrigeration Co., Inc.; Hastings Air Control, Inc.; Heat-X-Changer Co., Inc.; Henry Valve Co.; Henry Vogt Machine Co.; Hill, C. V. & Co.; Holsclaw Bros., Inc.; Howard Refrigerator Company.

Ideal Cooler Corp.; Imperial Brass Mfg. Co., Inc.; International Register Co.

Jackes-Evans Mfg. Co.; Jamison Cold Storage Door Co.; Jarrow Products; Jewett Refrigerator Co., Inc.; Jordan Refrigerator Co., Inc.

Kason Hardware Corp.; Kelvinator Div., Nash-Kelvinator Corp.; Kenmore Machine Products, Inc.; Kennard Corp.; Kerotest Mfg. Co.; Kinetic Chemicals, Inc., Div. E. I. duPont de Nemours & Co., Inc.; Kirsch Co.; Koch Refrigerator Co.; Kramer Trenton Co.

La Crosse Cooler Co.; Larkin Coils, Inc.; Lau Blower Co.; Lehigh Mfg. Co.; Lewin-Mathes Co.; Libbey-Owens-Ford Glass Co.; Linde Air Products Co.; Lipman Refrigeration Div., Yates American Machine Co.; Liquid Carbonic Corp.

Madden Brass Products Co.; Marby Co.; Magic Chef, Inc.; The Marley Co.; Marlo Coil Co.; Marlow Pumps; Jas. P. Marsh Corp.; McCall Refrigerator Co.; McCord Corp.; McCray Refrigerator Co., Inc.; McIntire Connector Co.; McQuay, Inc.; Meier Electric & Machine Co., Inc.; Milwaukee Electric Tool Corp.; Mitchell Mfg. Co.; Mueller Brass Co.

National Lock Co.; Nevinger Mfg. Co., Inc.; Pacific Lumber Co.; Palmer Mfg. Corp.; Paragon Electric Co.; Peerless of America, Inc.; Penn Brass & Copper Co.; Penn Controls, Inc.; Penguin Products; Pinnacle Equipment Corp.; Plasti-Kote, Inc.; Primus Co.; Pyramid Instrument Co.; Quiet-Heet Mfg. Corp.

R. B. M Div., Essex Corp.; R. C. S. Tool Sales Corp.; Ranco, Inc.; Ready-Power Co.; Rector Mineral Trading Corp.; Redmond Co., Inc.; Refrigeration Appliances, Inc.; Remco, Inc.; Remcor Products Co.; Remington Corp.; Resistoflex Corp.; Reynolds Metals Co.; Riverside Mfg. & Electric Supply Co.; Robbins & Myers, Inc.; Rochester Products Div.; General Motors Corp.

Sealed Unit Parts Co., Inc.; Selmix Dispensers, Inc.; Servel, Inc.; Sherer-Gillett Co.; Spencer Thermostat Div., Metals & Controls Corp.; Sporlan Valve Co.; Square D Co.; Standard Refrigeration Co.; Sub-Zero Freezer Co., Inc.; Sun Oil Co.; Superior Valve & Fittings Co.; Swift Mfg. Co., Inc.

Taco Heaters, Inc.; Tecumseh Products Co.; Tele-King Corp.; Temprite Products Corp.; Tenney Engineering, Inc.; Texas Co.; Time, Inc.; Tranter Mfg. Co.; True Mfg. Co.; Tyler Fixture Corp.; Typhoon Air Conditioning Co., Inc.

Uniflow Mfg. Co.; United Friguator Engineers; United Mfg. & Service Co.; United Refrigerator Co.; United States Air Conditioning Corp.; United Wire & Supply Corp.

Velocity-Power Tool Co.; Victor Products Corp.; Viking Copper Tube Co.; Virginia Smelting Co.; J. H. H. Voss Co., Inc.

Wabash Mfg. Co.; Wagner Electric Corp.; Warren Co., Inc.; Westinghouse Electric Corp.; White-Rodgers Electric Co.; Wilson Refrigeration, Inc.; Wolverine Tube Co.; York Corp.

G-E OPENS 2 MORE HEAT PUMP OFFICES

General Electric has announced the opening of additional heat pump sales branches in Los Angeles, Calif., and Chattanooga, Tenn., according to H. M. Brundage, general manager of the G-E. heat pump department.

The two new factory sales branches bring to three the number of such offices opened by the company in line with its marketing development program for the new all-season air conditioner. An office showroom was opened early in April in Birmingham, Ala.

The company plans to open additional sales branches in other areas in the near future, Brundage said.

A-P CONTROLS OPENS NEW TESTING LABS

COMPLETE WALK-IN cooler used in the refrigeration laboratory of the A-P Controls Corp., Milwaukee. Refrigeration products designed for use on such installations can be tested under operating conditions in this laboratory.

* * *

To provide complete testing facilities for the research and development of all types of automatic control devices, A-P Controls Corp. has completed new testing laboratories in Milwaukee, Wis. The new structure houses most of the firm's engineering activities and also includes offices, design and drafting rooms, laboratories, conference rooms and an experimental machine shop.

"A real challenge faces the engineer who is developing automatic control valves for a wide variety of fields," says L. A. Topp, A-P's director of engineering. "The constant development, by our customers, of consumer products to which our control valves are applied provides the impetus for a continually expanding engineering program in our company.

"We believe that our new, modern quarters include every feature of convenience, comfort and efficiency, and provide an ideal place in which our engineers and research men can meet this challenge."

About 70 people are engaged in all phases of engineering and research at A-P, Topp said. Time is approximately equally divided between development of new products and the improvement of existing products.

The addition provides for test rooms with automatically controlled temperature and humidity conditions in which control devices undergo all kinds of experimental tests. When the company has a control which requires testing to suit a specific application, A-P gets an actual manufacturer's model of the appliance to use in the laboratories, and conducts extensive performance tests under actual operating conditions.

USAIRCO APPOINTS WEST COAST FIRM

Norman S. Wright & Co. of San Francisco, Portland and Seattle, have been appointed manufacturer's representative by United States Air Conditioning Corp. Wright Co. will handle the complete line of heating, ventilating and air conditioning equipment. The San Francisco office is under the management of J. D. Kniveton, Seattle office under W. L. Johnson, and Portland under W. H. Oscanyan.

SEES 300% RISE IN HOME CONDITIONING

An increase this year of 300% in the number of new fully air conditioned homes was forecast by Cloud Wampler, president of Carrier Corp., who spoke at ceremonies held at the Waldorf-Astoria honoring the Grand National Prize Winners in Carrier's nation-wide competition among architects for the best designs for air conditioned homes.

The national grand prize of $5,000 was awarded jointly to Eduardo Fernando Catalano and Horacio Caminos, professors at the architectural School of North Carolina State College, Raleigh, for their winning submission, judged the best of 861 entries. This was a record number of contestants to enter such a competition. Prize awards totaled $27,800.

Regional award winners, who received $2,000 each were: Richard J. Dimit, Cambridge, Mass.; Lawrence Mallard and James L. Bennett, Greensboro, N. C.; Joseph Burnett, Chicago; Abraham Geller and William Cox, New York City; A. L. Aydelott, Memphis; and Thomas Bear, St. Louis.

"In 1952 about 15,000 new homes, or 1.5% of the total constructed in the United States, were equipped with year-round air conditioning," Wampler said. This year, 1953, recent data indicate that the total number of air conditioned homes should approximate 60,000, or 6% of all homes built—a gain of 300% in a single 12-month period. Based on the most reliable estimates, it now seems highly probable that in five years, assuming several business conditions that are favorable, we will find that one out of every two homes being built will be constructed to take advantage of year-round air conditioning.

"Currently there are some 50,000 homes in this country so equipped. By the close of 1957 the total should exceed 1,300,000 and at the end of 1958 I believe that the number may well pass the 2,000,000 mark. This projected sharp rise in the single year 1958 reflects another trend—this one within the air conditioning industry itself.

FISCHMAN NAMES NEW ENGLAND FIRM

The Fischman Co. Philadelphia, manufacturers of soda fountains and allied equipment, announce the appointment of Soda Fountains, Inc., Cambridge, Mass. as distributor in the New England area.

REMINGTON PLANS FOR 1954 SALES

Preliminary plans for sales of Remington room air conditioners in 1954 were the objective of a recent three-day national sales planning conference held at Skaneateles, N.Y.

M. L. Judd, general sales manager of Remington's Air Conditioning Div., told Remington regional and district sales managers from all sections of the country that "sales of Remington room air conditioners for the six months ending April 30 have exceeded by 20% the entire sales for 1952." The 1954 plans will be announced at general sales meeting in the fall, he said.

Judd also announced that Remington's sales force is now more than four times larger than three years ago.

Among the sales managers and representatives attending were: William G. Adair, Memphis; Edward G. Sommerlath, Jr., St. Louis; Samuel Davison, Sr. and Samuel Davison, Jr., Chicago; John D. Moffitt, Boston; William H. Peters, New York City; E. M. Johnson, Philadelphia; William H. Lassiter, H. Rush and J. Hart, Richmond; Lecil W. Henderson, Charlotte, N.C.; Lew C. Zicarelli, Jacksonville, Fla.; William H. Moler, Dallas; Frank S. Grott, Cleveland; Robert E. Tweedy, Phoenix, Ariz.; Lorimer Dunlevy, Omaha, Neb.; John Castleman, Louisville, Ky.; William Dennison, Los Angeles; Roy H. Case, Seattle; and D. L. Davidson, Cleveland.

ROOM COOLER . . .

Continued from page 43

Jones, Jr., managing director of the Institute. "Air conditioning in the hot, humid weather of midsummer is just as important as comfortable heating during the winter months. People are beginning to realize this, and, while there may be some slowing down of deliveries in the second half of 1953, the controlling factor will not be lack of sales, but the production of component parts which manufacturers need in order to meet their projected schedules.

"This active market for room air conditioners means that present production is being absorbed by the market and not going into inventory stocks."

RICHMOND FIRM TO SELL PRECIPITRON

Massey, Wood & West, Inc., Richmond, Va., has been awarded a distributor's franchise for Westinghouse's home Precipitron electronic air cleaner. The announcement was made by W. B. Cott, air conditioning sales manager of Westinghouse Electric Corp.'s Sturtevant Div.

Headed by Ivor Massey, Massey, Wood & West, Inc. has been associated with the heating, ventilating, and air conditioning business in the Richmond area for more than 25 years.

JOHNSON OPENS WIS. BRANCH OFFICE

A new branch office in La Crosse, Wis. has been opened recently by Johnson Service Co.

The new branch will serve the La Crosse and Eau Claire areas in Wisconsin, and the Minnesota region around Winona. B. K. Edwards, formerly of Johnson's Milwaukee office, will be the sales manager in charge of the La Crosse branch.

SOUTH AFRICA HAS TRADE SHOWS, TOO

A. R. (FLICK) FALLICK is shown with his Freon display included with the Airco Engineering Ltd. exhibition at the Rand Easter show at Johannesburg, South Africa. Familiar to many who attended the All-Industry shows of 1946 and 1951, Fallick distributes Freon throughout South Africa. Airco handles Carrier through the same region.

NEW DIVISION SELLS AMERICAN-STANDARD CONDITIONING UNITS

American-Standard warm air heating and cooling equipment is now being handled by a new and separate division of American Radiator & Standard Sanitary Corp. especially created for the purpose.

Called the Sunbeam Air Conditioner Div., the new organization took over all operations of the corporation's former warm air heating department on July 1. It is now responsible for all the company's operations in the air heating and cooling fields, including product development, manufacturing and distribution.

Executive offices of the new division are in Pittsburgh, while production and distribution operations are centered in Elyria, Ohio. Field sales offices will be established in principal cities.

Company officials announced that the formation of the new division was prompted by the increasing importance of the air conditioning industry and by the growth of the company's activities in that field.

The rapidly expanding line of products and growing demand for them have reached the point where specialized and independent operation will best serve the industry and the public, the company believes.

Top executives of the new division are Thomas W. McNeill, president; H. M. Carnahan, vice president, sales; and Frank P. Weil, vice president, manufacturing.

G-E SHIFTS PART OF COOLING DEPT.

Part of the home heating and cooling department of General Electric Co.'s Air Conditioning Div. will be transferred from Bloomfield, N. J., to Trenton. The Air Conditioning Div. will use the vacated facilities to manufacture air conditioning units and water coolers for commercial and industrial use, and packaged heat pumps.

The part of the home heating and cooling department which will move to Trenton will occupy a 300,000 sq. ft. plant which currently houses the company's home laundry department. This department in turn is being moved to Louisville, Ky. Production in the relocated home heating and cooling department will begin by the end of this year, according to the company.

FEDDERS IN DRIVE FOR ALL-YEAR SALES

Fedders-Quigan Corp. has launched a national sales and promotion program designed to convince dealers that room air conditioners can be sold on a year-round basis.

"There were many sales of room air conditioners during the last quarter of last year," said Robert E. Cassatt, sales manager of the company's Refrigeration Appliances Div. "This year we plan to expand this trend by extending our active selling and merchandising, which began in January, through December.

"The off-season will not, of course, produce the movement of merchandise which occurs during the hot weather, so we plan to convince our dealers that there are considerable sales opportunities for them during the Christmas and early spring selling periods. We plan to supply them with selling tools and develop sales campaigns during these seasons."

In addition to national magazine advertising and use of newspaper space in key cities, the company is also supplying distributors and dealers with mailing pieces, window streamers, dealer cooperative advertising, and other sales promotion aids.

Dealers will welcome this program, Cassatt believes, because they are beginning to recognize the growing importance of air conditioning to their business, in helping to offset the sales declines in other product lines.

NEW DISTRIBUTORS FOR STURTEVANT

The Sturtevant Div., Westinghouse Electric Corp. has named several new distributors. Dixon Hardware Co., Inc., Albany, Ga., New England Equipment Co., Lewiston, Me., and Industrial Equipment & Engineering Co., Inc., Pittsfield, Mass., have been awarded franchises as distributors of self-contained air conditioning equipment. Gas Heating Corp. Norfolk, Va., has been appointed distributor for unit heating equipment.

WHEN YOU WORK WITH REVERE

DRYSEAL

REFRIGERATION TUBE

DIRT AND MOISTURE ARE OUT BEFORE YOU START!

When Dryseal Tube reaches you the inside is as smooth and shiny as the bore of a new shootin' iron. For the last step in manufacturing Dryseal is to close both ends with a precise, mechanical, double-crimp seal. This bars the faintest trace of dirt and keeps Dryseal bone-dry. The seal is made in such a way that the diameter of the tube does not change, which permits Dryseal to be passed through any opening large enough for the tube itself.

While Dryseal may be stubborn about keeping out dirt and moisture it's a soft touch when it comes to bending. The soft temper of the copper used in Dryseal allows you to make the most intricate bends by hand. And its ductility and special temper make it extremely easy to flare for compression fittings without danger of splitting. Economical tube sizes range from ⅛" to ¾" O.D.

And, for your greater convenience, Dryseal is packed in a nifty-50 one-coil carton. This carton, which has been attractively designed for easy identification in stock, contains one 50-foot coil of Dryseal . . . is easier to handle, light weight, economical and is sturdily made to assure protection of the tube.

IN THE EASY-TO-HANDLE

NIFTY-FIFTY...ONE COIL CARTON

REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

• • •

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.— Sales Offices in Principal Cities, Distributors Everywhere

SEE REVERE'S "MEET THE PRESS" ON NBC TELEVISION EVERY SUNDAY

COMMERCIAL *Refrigerator* SALES NEWS

Dealers from Coast to Coast Report On Methods of Managing Salesmen

DESCRIBING how they attempt to get the most from the potential in each salesman's territories, several distributors of commercial equipment furnished information which was included in a recent issue of *NCRSA News*, official bulletin of the National Commercial Refrigerator Sales Association.

Replies from seven distributors from various parts of the country are listed below.

An Arkansas distributor commented: "Of course there is no sure way to make certain the salesmen cover all possible prospects in their territory since they each cover approximately a third of the state. They work primarily on the 'tip' system. That is, inquiries received at the office from advertising, inquiries received by the factories we represent, and regular customers are usually very helpful and let us know who prospects are.

"We also get tips from wholesale grocery-men who cover the territories, and if a sale results from their tip, they are reimbursed a fair amount. The amount, however, is up to the salesman who made the sale and is taken from his commission. We have found that we miss very few prospects on this system and cold canvassing is unnecessary. We also keep close watch on construction news and grocers' bulletins which tips us on groceries changing hands, building or remodeling."

A distributor in Washington, D. C., wrote: "Our salesmen do not have protected territories. Our men are permitted to sell anywhere in our franchised area and frequently the same prospects are contacted by more than one of our salesmen. In such instances the two salesmen work together and split their commission. This does not occur very often as we more or less work on the 'honor' system. In 90% of these instances when a salesman finds that another salesman is working on the same prospect he steps out of the picture. Usually, our drafting department makes a floor plan on each job so it is not difficult for our salesmen to establish who or what prospect is being covered by which salesman.

"A few years ago we went to the trouble of dividing our territory into sections but at the last moment we decided to try this at some future time. The main bone of contention is that a territory being covered by a weak salesman could very well make our competitors stronger in that particular territory."

From a Cleveland, Ohio, distributor, this method was given: "We use a Salesman's Daily Report, Planned Work Sheet, and a report on leads either called or mailed into the office. These leads are written up and one copy is given to a salesman, the other retained by the office. After the salesman calls on the customer a report is given to the office."

A Cincinnati, Ohio, distributor's comments were as follows: "Frankly, we know we are not covering every possible prospect in our territory — but we try. First, our factory does some direct mail advertising in the territory. In addition, we do some direct mail advertising of our own covering the various products that we handle. We are also members of the Merchants Exchange, a local reporting service from which we receive a daily bulletin listing new businesses, changes of ownership, new locations for established businesses, and similar information. We have obtained many good orders from prospects originating from this bulletin.

"We also exchange information with a local food machine distributor whose business is not competi-

DESK-TOP DISPLAY EASEL PROMOTES EQUIPMENT SALES

PENGUIN PUSHER sales promotion package, available to all Penguin dealers, contains a desk-top display easel with six flip-over pages which can be easily carried under an arm. In addition to this door-opener is a special mailing piece to stimulate prospect interest. As an "extra", a sticker seal, for use on letterheads, envelopes and similar applications is included. A magazine advertising campaign is being conducted simultaneously to develop inquiries and interest in dealer territories.

tive with ours. We also use newspaper advertising, local trade paper advertising and encourage our salesmen to do as much cold canvassing as time permits.

"Last but not least, there is the ever-popular 'bird dog' drivers for the bread companies, meat packers, dairies, etc., who give us a fairly steady flow of leads, some good and quite a few bad, but on the whole a worthwhile source of information at a reasonable cost."

The following method is used by a San Francisco distributor: "We have a weekly prospect report sheet on which we ask the salesman to turn in the report on prospects in his particular territory. This does not mean that we want a report of all the calls made nor do we want a report of the 'suspects' in the territory.

"Blast it all! I DO wish that ice-cube salesman would stop sending me samples by mail!"

"From this weekly prospect report we can very easily tell whether a salesman is applying his time properly because at all times he should have a certain number of prospects that are fairly hot. If the man doesn't have any prospects it is proof positive that he has not been applying his time correctly and then is the time for us to have a heart-to-heart talk with the man and find out why he does not have prospects.

"We set the territories up in such a manner that no salesman has over 600 possible store operators in his area. We leave it pretty much to the salesman's discretion to make coverage in his territory because it affects his pocket book just as much as it affects the company's profit picture. The only list that we insist

upon in the territory is a perpetual list of our own users.

"This list is made up in loose-leaf form and put into a binder for each particular territory, and it is the obligation of every salesman to attempt to cover and call on each of these users at least every three months and record in the loose-leaf binder the results of the call or the conversation he had during the call.

"Our feeling is that it is extremely important to keep in contact with our old customers, because they are after all, the best prospects for future business. We may, perhaps, treat our salesmen too loosely because we do not insist upon voluminous reports, but we do feel that with salesmen of relatively high caliber it is to their interest to use their time correctly in order to earn additional compensation in the form of quality and volume bonuses, without which the basic salary is not too attractive."

BUY FROM YOUR REFRIGERATION WHOLESALER

NCRSA PLANS PROGRAM FOR 7TH CONVENTION

A full program of educational meetings and social events has been planned by National Commercial Refrigeration Sales Association for its 7th annual convention to be held at Cleveland's Hotel Statler Nov. 9 and 10 in conjunction with the 8th All-Industry Refrigeration and Air Conditioning Exposition.

Theme of the NCRSA program will be: "Today's Plans Make Tomorrow's Sales".

W. B. McMillan, president of Hussmann Refrigeration Co., will kick off at the group's opening session with a talk on "The Importance of the Distributor to the Future of Our Industry". I. W. Shell, NCRSA president, will follow with a talk entitled: "Our Industry — Past, Present, and Future".

A panel discussion on food store planning, installation and service, and refrigeration engineering, will round out the opening day.

The second day's program will include the following talks:

"How to Place Greater Emphasis on Commercial Refrigeration Equipment", Reese L. Harrison, executive vice president, Friedrich Refrigerators, Inc.; "How We Handle Floor Sales and Inquiries", S. G. Taylor, Taylor Refrigeration Co., Des Moines, Iowa; "The Duties of a General Manager of a Sales Organization", R. J. Wischusen, Engineering and Refrigeration, Inc., Jersey City, N. J.; and "The Value of a Periodic Mailing Piece", Neil B. Herman, Allied Store Equipment Co., Minneapolis, Minn. Taylor and Wischusen are NCRSA vice presidents.

57% MORE STORES SELL SELF-SERVICE MEATS

A 57% gain in the number of independent stores operating complete self-service meat departments during the past year was reported by The Progressive Grocer in its 20th annual survey of food retailing. The total number of stores with self-service meats reporting at the end of 1952 was 3300, in contrast to the 2100 stores reporting at the end of 1951.

Independent stores with self-service meat departments reported a gain of 21.8% in total store sales

last year. Independent stores with partial self-service meat departments showed a sales gain of 12.5% in 1952; while the average sales increase reported by stores with counter service meats was only 6.5%.

NAMES REPRESENTATIVES

S & R Soda Fountain Mfg. Co. has announced that it has recently appointed the following representatives: Eric B. Thormann, New England area; J. E. Tylor, Mid-Atlantic area; Leonard J. Ross, Southeast area; E. N. McClure, Central area; Floyd E. Freeman, Midwest area; Marcus W. Beach, Southwest area; and William T. Miles, West Coast.

FRIGID IGLOO EXPANDS

Frigid Igloo Mfg. Corp. has taken over another floor at their location and now occupies the entire building. According to S. James Krakow, executive vice president, the space now occupied is approximately 22,000 sq. ft.

FOUR MORE FIRMS JOIN NCRSA ORGANIZATION

The addition of three distributor members and one associate member to its ranks has been announced by the National Commercial Refrigerator Sales Association. The new distributor members are: Loudon Mfg. & Sales, Inc., Minneapolis; A. M. Schwartz, Inc., Cincinnati; and Everfrost Sales, Inc., Lebanon, Pa. The new associate member is National Market Equipment Co., Royal Oak, Mich.

NEW FRIGIDAIRE SALES-SERVICE ZONES

Frigidaire Div., General Motors Corp. has set up an organization to handle contacts between factory sales and service departments and Frigidaire's sales districts.

H. F. Lehman, general sales manager, explained that the new zone sales and service managers, operating out of the factory, will assume some of the responsibilities previously held by four of the division's five regional sales offices. Because of the distance from the factory and the Pacific region office, that office will continue as the sales contact in that area, he said. Regional offices in Atlanta, New York, Dayton, and Dallas have been discontinued.

Administrative and operational matters involving districts will be handled by a new branch and distributors department at the factory, headed by H. T. Mattern, formerly manager of the Dayton central region office.

R. H. Huston, formerly eastern region manager, has become assistant appliance sales manager at the factory. F. M. Davison, previously southeastern region manager, now handles special assignments in the general sales department.

HACKL WILL MANAGE TRANE DALLAS OFFICE

Appointment of A. James Hackl as manager of the Dallas sales office has been announced by Thomas Hancock, vice president in charge of sales for The Trane Co.

West Coast Contractors Succeed In Drive for "Industrial Discount"

THE move to establish an "industrial discount" on refrigeration parts and supplies has resulted in fairly uniform policies in this matter, a recent survey of the situation shows.

Henry Ely, secretary of the Refrigeration and Air Conditioning Contractors Association of Southern California, Inc., says in a recent bulletin from Los Angeles:

"The Association recently made a survey as to the policies of wholesalers in connection with their sales to industrial users falling in the classifications of meat packers, bakeries and brewers. The Association found the following firms (9 parts and wholesalers listed) are now selling to meat packers, bakeries and breweries at approximately 25% above the dealer's price which will leave a net profit on the sale of 20%."

The contractors group has been actively seeking the recognition of a realistic price structure which might be applied to industrial users and which would eliminate unfair price advantages in any competition between wholesaler and contractor for the industrial user business.

In another approach to the problem, R. S. Dawson, manufacturer's agent, has met with some success in having his principals inaugurate and publish a "Recommended Discount to Industrial Users". He feels that considerable confusion could be avoided if manufacturers will recognize the differences between certain types of industrial and non-industrial users, and recommended realistic price differentials where justified by the nature of the product and methods of distribution.

Refrigeration parts and supplies wholesalers who have discussed the subject point out that the matter is of primary interest only to those who are interested in such a market. Rudy Rudisil of Refrigeration Supplies Distributors feels that wholesalers in general are now selling through accepted trade channels and a "recommended" price applicable to other purchasers may be desirable but that his firm, for example, is not interested in making sales to other than recognized trade channels.

Hal Clay of Authorized Supply Corp. expressed much the same sentiments, and feels that the unlies in the "definitions" paragraph and not in the discount column. What confusion exists he believes lies in interpreting and applying the definitions.

The sentiment was expressed that representative industry segments should unscramble such terms as "distributor", "OEM account", "industrial user", "national account", "dealer", "contractor", "service organization", "consumer", "government body", etc.

It was pointed out that one manufacturer's "industrial user" was another's "national account".

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850 LOCALITIES NOW FOLLOWING A.S.A. CODE

Refrigeration equipment manufactured to conform with the safety provisions of the American Standard Safety Code for Mechanical Refrigeration, B9.1, can now be installed in 850 governmental jurisdictions without special alterations to conform with local ordinances.

The B9 safety code has been adopted either outright by these cities, counties, and states or as incorporated in the model codes of other organizations. In announcing this, Vice Admiral G.F. Hussey, Jr., managing director of the American Standards Association, stated that universal adoption of the code would not only help to eliminate unnecessary costs of specially built equipment but would assure the adequate safeguarding of persons and property in commercial and residential occupancies, particularly in apartment houses.

The figure for the nationwide use of this American Standard was

reported by the Refrigeration Industry Safety Advisory Committee (RISAC) following a recent survey. Myron D. Miller, executive secretary of RISAC, stated that this growth in the use of the code could be credited largely to the trend of establishing model codes, many of which incorporate the safety recommendations of B9.

The Basic Building Code of the Building Officials Conference of America, for example, was established in 1950. It has been adopted by a number of cities, thereby establishing the B9 Safety Code, a part of the BOCA code, as the required provisions for those cities. The National Board of Fire Underwriters has two codes—the National Building Code, governing air conditioning and the Fire Prevention Code, governing all refrigeration installations, both utilizing the B9 code — which have been adopted by many cities.

Three hundred cities, the committee states, have adopted the optional refrigeration provisions of the Uniform Building Code of the Pacific Coast Building Officials Conference, which are based on the B9 standard.

Because the code is so widely accepted throughout the country, most manufacturers are meeting the minimum standards of the code in the manufacture of their equipment. Consequently, cities that have provisions for mechanical refrigeration which differ from the code may require the alteration of equipment before it is installed.

N. J. CONTRACTORS ISSUE BROCHURE ON ETHICS

An attractive four-page folder has recently been released by the Heating, Piping and Air Conditioning Contractors New Jersey Association, stating that organization's business principles.

Titled *Code of Ethics*, the text reads as follows:

The foundation of business is confidence which springs from integrity, fair dealing, efficient service and mutual benefit.

The reward of business for service rendered is a fair profit plus a

SEE PAGE 18

safe reverse, commensurate with the risks involved and the foresight exercised.

Equitable consideration is due in business alike to capital, management, employees, and the public.

Knowledge — thorough and specific — and unceasing study of facts and forces affecting a business enterprise are essential to a lasting individual success and to efficient service to the public.

Obligations to itself and society prompt business unceasingly to strive toward continuity of operation, bettering conditions of employment, and increasing the efficiency and opportunities of individual employees.

Contracts and undertakings, written or oral, are to be performed in letter and in spirit. Changed conditions do not justify their cancellation without mutual consent.

Representation of goods and services should be truthfully made and scrupulously fulfilled.

Waste, in any form of capital, labor, services, materials, or natural resources is intolerable and con-

COLD-STOPPER

ECONOMICAL operation of oxygen generators requires an efficient insulating material to protect the liquefying and distilling sections, at temperatures as low as 320 F below zero. Engineers at Air Products Inc. of Allentown, Pa., have specified granulated mineral insulation to be packed between the liquefaction and distilling apparatus and the shell of each generator's air separator. The amount of granulated insulation used in Air Products generators varies from 2,000 lbs. in small units to as much as 800,000 lbs. in a unit for the poduction of tonnage quantities of oxygen. In the photograph, the granulated insulation is being replaced following inspection of operating equipment reached by removing the middle access panel.

CONTRACTOR NEWS

stant effort will be made toward its elimination.

Excesses of every nature — inflation of credit, over-expansion, overbuying, over-stimulation of sales — which create artificial conditions and produce crises and depressions are condemned.

Unfair competition, embracing all acts characterized by bad faith, deception, fraud, or oppression, including commercial bribery, is wasteful, despicable, and a public wrong. Business will rely for its success on its excellence.

Controversies will, where possible, be adjusted by voluntary agreement or impartial arbitration.

Corporate forms do not absolve from or alter the moral obligations of individuals. Responsibilities will be as courageously and conscientiously discharged by those acting in representative capacities as when acting for themselves.

Lawful cooperation among business men and in useful business organizations in support of these principles of business conduct is commended.

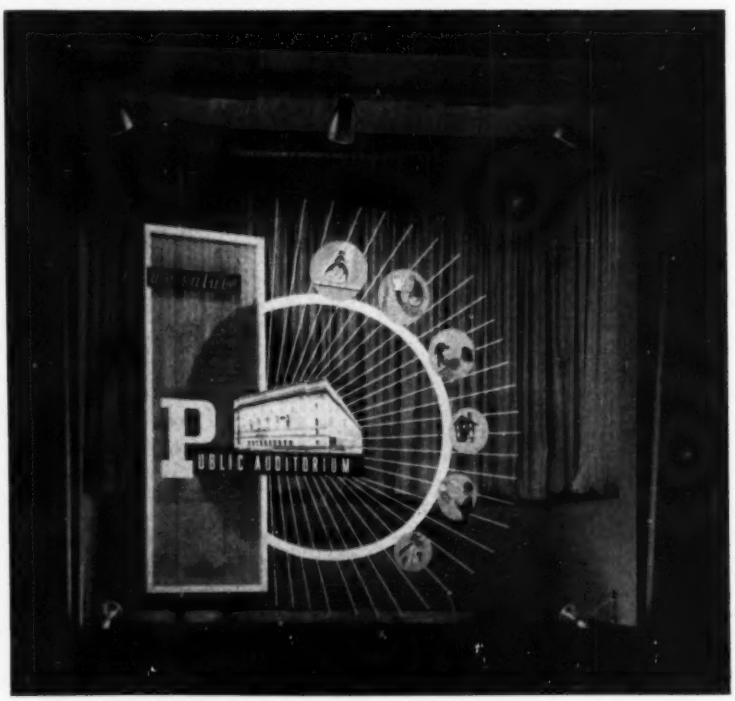
Business should render restrictive legislation unnecessary through so conducting itself as to deserve and inspire public confidence.

BARBER-COLMAN CO. OPENS 2 NEW OFFICES

The automatic control and uniflo divisions of Barber-Colman Co. have opened two new factory branch offices, one in Syracuse, New York and the other in Jacksonville, Florida.

The manager of the Syracuse office, located at 218 Harrison St., is K. C. Watson. D. W. Minick will manage the Jacksonville office, located at 1143 Mary St.

AFTER-DARK TRAFFIC STOPPED BY "BLACK LIGHT"



A "BLACK LIGHT" DISPLAY WINDOW, first in the city of Cleveland on a permanent basis, has been an outstanding feature of the new headquarters of Refrigeration Sales Corp. ever since the opening of the new establishment early this year. Especially designed to catch the eye of after-dark street traffic, the first display shown above in this modernly designed window was a non-commercial tribute to Cleveland's Public Hall, which will be the site of the 8th All-Industry Refrigeration and Air Conditioning Exposition this November. Displays since that time have been alternated between those of a strictly "product" nature and those with a civic or institutional flavor. A commercial display firm is employed to design the window exhibits.

ABOUT PEOPLE . . .

Continued from page 40

manager of advertising and sales promotion of the firm's Locke Dept. in Baltimore. In 1950 he was one of 47 GE employees who received the Coffin Award, the highest honor given by the company in recognition of outstanding work by employees. He was honored for developing a sales force educational program which was effective in familiarizing salesmen with new products.

•

W. G. Adair has been appointed sales representative and **Christian M. Ebersole** has been named field service representative for Remington room air conditioners in the south central states. Adair will cover western Tennessee, Mississippi, Louisiana, Arkansas and Oklahoma. Ebersole will supervise field service in Tennessee, Missouri, Kansas, Oklahoma, Texas, Louisiana, Arkansas and Mississippi.

William Howard (Pete) Peters has been appointed eastern regional manager for Acme Industries, Inc. He will manage the New York office and supervise the activities of Acme's representatives in New England; upper New York State; Philadelphia; Washington, D. C.; Virginia and the Carolinas. He was formerly with Remington Corp. where he was in sales and management positions. For the past three years he has been eastern regional manager for that firm.

•

Roy L. Smith has been appointed to the Philadelphia sales office of Trane Co. and **James J. Callahan** has returned to the Newark, N. J. sales office after a tour of military duty. Smith has had 13 years' experience in the air conditioning field in the Philadelphia area. Callahan was originally assigned to the Newark office before his recent military service.

•

Walter D. Sweetland has been named general manager of Brewer-Titchener Corp.'s Crandal Stone Div. Sweetland will head up the two division plants in Binghamton, N. Y., and also the New Milford, Pa. plant. He has been with the company since 1922.

•

Three appointments have been made in the sales forces of American Air Filter Co., Inc. **Frank W. Boone** will handle special sales problems of original equipment manufacturers and distributors who use filters made by the company, **Charles J. Morrison** has been appointed sales representative for the firm's Amer-glas products department, and **Dale Barnstable** has been named to the sales staff of the same department. Boone will cover

the entire country in his new post. Morrison will cover distributors and original equipment manufacturers in the midwestern and north central states. Barnstable has been assigned to cover the southern and eastern states. He has been with the firm for 2 years and will headquarter in Louisville.

•

Glen J. Smith has been appointed service manager of Sherer-Gillett Co. He succeeds Ben K. Hopkins, who left the company to enter private business. Smith joined the firm in 1946 and has since been engaged in the manufacturing, testing, installing and servicing phases.

BUY FROM YOUR REFRIGERATION WHOLESALER

Leon J. Traney and **George T. Davis** have been appointed sales engineers in the Philadelphia district for Bush Mfg. Co. and Heat-X-Changer Co. Before joining Bush and Heat-X, Traney was with another heat transfer company as an application engineer. Davis was formerly a project engineer with Tuttle & Bailey and has served as an application engineer at bush immediately prior to his present appointment.

L. J. Traney

G. T. Davis

•

Herbert Freedman has been named national sales director of domestic lines for Jordon Refrigerator Co. Freedman will re-organize and expand Jordon's entire national sales organization on domestic goods. **Phillip Benn** has been promoted to assistant sales manager and will work closely with Freedman.

•

A. H. Rose has been appointed general sales manager for Sub-Zero Freezer Co. Rose is a pioneer in the home freezer industry.

•

Francis A. Yost has been appointed construction engineer for the Pittsburgh Corning Corp. He will act as a construction consultant with emphasis on cold storage work. Yost was formerly plant engineer for the Fried and Reineman Packing Co. He will make his headquarters in Pittsburgh.

Circle No. 48 on Reader Service Card

Circle No. 49 on Reader Service Card

STUDY AIR FLOW IN YEAR-ROUND SYSTEMS

Possibilities for year-round air conditioning systems utilizing the same air flow rate during winter heating and summer cooling were brought out by S. F. Gilman, research assistant professor of mechanical engineering, University of Illinois, in a talk before a meeting of American Society of Heating and Ventilating Engineers.

Prof. Gilman reported on initial results of a research project concerning room air distribution for residential year-round air conditioning carried out with H. E. Straub, research associate in mechanical engineering at the university, A. E. Hershey, advisory engineer, research laboratories, Westinghouse Electric Corp., and R. B. Engdahl, supervisor, Battelle Memorial Institute.

"From the looks of this hand, you fellows have more than service problems!"

Although engineering methods have been developed for designing winter heating systems and summer cooling systems for residences, the combining of the cooling and heating operations into a year-round air conditioning system presents several problems, and the rapidly accelerating rate at which year-round air conditioning is being installed in residences emphasizes the need for air distribution research, Prof. Gilman explained.

Test results indicated that an increase in the amount of air being circulated during winter heating caused a decrease in temperature variations within the room but did not cause excessive air motion in the occupied zone. This fact, it appears, might make it possible to successfully use the same air flow rate for year-round air conditioning.

The research also led to the conclusions that free openings were unsatisfactory as high sidewall supply outlets for summer cooling; the location of the return air intake had only a localized effect on the room air distribution; at the same outlet velocity, the air motion in the occupied zone was much greater during cooling operation than during heating; vertical temperature variations in the occupied zone during cooling were generally about one degree, whereas they ranged between 10 and 20 degrees during heating; vertical-vane settings of the supply outlets had a great influence on air distribution during cooling, but only a small influence during heating; and horizontal-vane settings of the supply outlets affected the air distribution during cooling but not during heating.

PHOTO OF UNICON INSTALLATION
AT SHOYER S RESTAURANT, PHILA., PA.
BY ATLANTIC REFRIGERATION AND EQUIPMENT CO.,
PHILA., PA.

No Water

needed for Condensing

WITH THE

UNICON

TRADE MARK

by KRAMER

Any Size compressor REGARDLESS OF TONNAGE can be Air-Cooled with UNICON

If water is a problem,
there is only one CORRECT SOLUTION—
UNICON by Kramer,
the air-cooled condenser that DOES NOT USE WATER!

Two types—the direct drive and the belt drive—
are available for ¾ to 100 H.P.

Stands, hoods, and wind deflectors are available for simplified mounting. You need nothing else!

WRITE FOR BULLETIN U-210

KRAMER TRENTON CO. • Trenton 5, N.J.

Circle No. 34 on Reader Service Card

SERVICE PROFITS . . .

Continued from page 39

(this might vary considerably in different areas) for a total of 3%; automobile expense, 8%; office overhead expenses, 51.6%; unapplied time, 17.16% (that's the cost of going from call to call, etc.); and a 10% gross profit, which figures out after all the items included, to 18.88% of the overall figure. All of this works out to a total of 207.64% of the original basic service wage.

In the allowance for insurance (9%) are included six items: Social Security, unemployment compensation, workmen's compensation,

". . . and I never even touched it, Mr. Ferdway!"

public liability and property damage, products liability, and miscellaneous insurance coverage.

Office overhead includes such things as rent, heat, light, phone, clerical, advertising, bad debts and others. In the survey made by the Chicago association, office overhead totaled 43% of the 120% representing the total cost before overhead, including basic wage, insurance, welfare fund, and automobile expense. This came out to 51.6% of the base figure.

Unapplied time was found to represent another 10% of the mounting total, or 17.16% of the base. For information purposes, "unapplied time" represents the time mechanics spend travelling from one job to another, etc.

Gross profit is obtained by taking a 10% mark-up on the cost at this point, which comes out to 18.88% of the basic figure at this point. In terms of the total cost to the contractor or service organization, however, the gross profit is equivalent to about 9%.

In dollars and cents, here is how this computation works out for each dollar of a serviceman's basic wage. To this $1.00 must first be added 9 cents for insurance, 3 cents for welfare fund, and 8 cents for automobile expense, making a total of $1.20. Then computing office overhead as 43% of this figure, or 52 cents, the total becomes $1.72.

Adding 17 cents (10%) for unapplied time brings the cost figure up to $1.89. Then adding another 19 cents to cover a 10% markup for 9% net profit ups the contractor's final cost for doing service work to $2.08 cents for each $1.00 of basic wage paid to the serviceman.

Although it is not specifically mentioned in the compilation, the gross profit of 9% which all of these computations arrive at is, naturally enough, "before taxes". What further need is there to indicate that a sharp pencil — indeed, an ultra-sharp pencil — is needed to figure out a profit in the service business nowadays?

DUPLEX SYSTEMS . . .

Continued from page 37

large as 80 x 30 ft. This 100-ton job, originally consisting of single compressor units of 5, 10, and 15 hp was changed over completely to the duplex system, using three 5-hp units where every 15-hp compressor had been, two 5's for every 10, and two 2's or 2 3's for every 5.

The substitution of three 5-hp compressors for one 15-hp unit was possible because it is just as easy and just as practical to install a "triplex" system as it is to convert to duplex operation.

In effect, this revamped market was converted into a zoned job with each separate system handling its own zone. And what's more, it was actually done at no increase in cost over what the expense would have been in installing the larger units.

In the matter of service, too, the duplex system offers a distinct advantage. For instead of calling up during the hot-weather season to complain that he is completely without refrigeration and must have immediate emergency attention, the owner of a duplex system may call to complain that one compressor has broken down and that the temperature in his cooler has risen 2 or 3 degrees.

Knowing that this is not critical, and that the remaining compressor will handle the job temporarily, the contractor can readily reply that he'll have a man out in two or three days to see what the trouble is. And the load that this takes off his service department during this high-pressure period is really incalculable.

TRANE REVISES MANUAL ON AIR CONDITIONING

A newly revised edition of the Trane Air Conditioning Manual has been published by The Trane Co., La Crosse, Wis.

A new fan chapter has been added to the book to cover fan application and selection, basic fan laws and duct design data and nomenclature. This chapter adds to the manual complete information on design of air handling systems for air conditioning.

The present 380-page edition marks the 16th printing and second major revision since 1938.

The manual begins with a simplified presentation of the basic physical laws governing heat and cold and applies these laws to practical problems in air conditioning. A chapter on comfort and physiology of human heat control mechanism illustrates comfort standards. Other chapters on heat gain and loss, properties of air and the psychrometric chart, refrigeration and calculations for the conditioned air supply are among those given in the book on basic system design and equipment application.

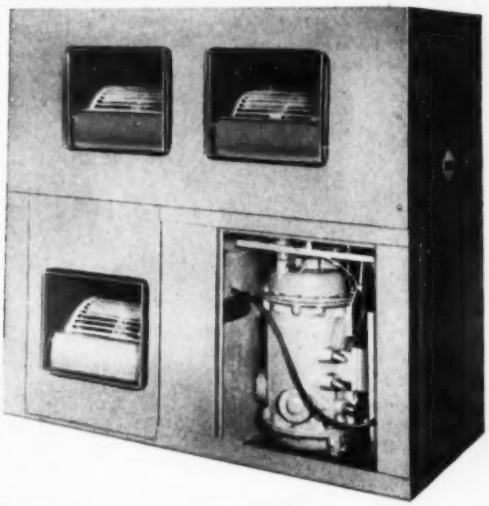
A reference section contains standard tables on air, refrigerants, pipe capacities for refrigerant liquid and vapor and ducts.

The manual can be purchased from Trane for $5. The new fan chapter is available separately for $1 per copy.

BUY FROM YOUR REFRIGERATION WHOLESALER

It's the added Features that...

WATER COOLED
"Packaged" Air
Conditioner



AIR COOLED
"Packaged" Air
Conditioner

make Chrysler Airtemp easier to sell!

Guaranteed by Good Housekeeping

Comfort Zone

Protected by Bonderite Quality Corrosion Resistant

When the air conditioners you sell are protected by Bonderite, you have a feature that can be demonstrated quickly and easily to prospects.

Bonderite protects and preserves paint finishes in 3 important ways:

1. Anchors paint to metal
2. Resists corrosion
3. Protects paint around accidental breaks

The Bonderite process at Airtemp consists of 6 separate operations. The equipment alone costs many thousands of dollars. But—it makes a better product—it is a feature you can demonstrate—and you pay no premium for it.

Send for a free sample, so you can prove to yourself that Bonderite makes Chrysler Airtemp easier to sell.

Chrysler Airtemp

HEATING • AIR CONDITIONING
FOR HOME, BUSINESS, INDUSTRY

AIRTEMP DIVISION OF CHRYSLER CORPORATION
DAYTON 1, OHIO

Airtemp Division of Chrysler Corporation CR&AC-9-53
P.O. Box 1037, Dayton 1, Ohio

I would like to know more about the Chrysler Airtemp's franchise.

Name_____

Address_____ Phone_____

City_____ Zone____ State_____

Circle No. 53 on Reader Service Card

"It sure gets rid of the gook!"

It in this case is "Virginia's" new degreasing solvent sold under the trade name of Virginia No. 10. Made expressly for refrigeration, electrical and automotive use, Virginia No. 10 fills the need for an effective degreaser that can be used with comparative safety.

Whatever you expect a degreaser to do, Virginia No. 10 does it—like a charm. Removes oil, grease and grease-bound dirt in a flash. It has very good drying properties, is non-corrosive and, unlike some solvents, will not cause the rusting of machined parts.

But Virginia No. 10 is much more than a good degreaser. It has a dielectric strength of 20,000 volts. The significance of this is it will not attack electrical insulation or leave any current-carrying residues. Its flammability hazard is very low. And you can stand a concentration of 200 parts per million for hours without harm—it's about 8 times less toxic than carbon "tet."

Virginia No. 10 is available in 1 gallon factory-filled cans from your favorite wholesaler. Or write **VIRGINIA SMELTING CO., Dept. 64, West Norfolk, Va.**

VIRGINIA *Refrigerants*

ESOTOO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSTITE TAPE
SOLVEX PRODUCTS • SUNISO REFRIGERATION OILS

Circle No. 54 on Reader Service Card

THE COMMERCIAL REFRIGERATION and AIR CONDITIONING APPLICATIONS MANUAL

by William M. Brewer

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION AND AIR CONDITIONING, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

Garden Spray Ponds Offer Attractive, Practical Water-Saving Means for Home Cooling Systems

RESIDENTIAL air conditioning represents the greatest potential market the industry has ever known. Even today, on a national scale, it is a tremendous business. Because of the over-night development of this large residential market, many installing contractors are running into costly pitfalls as a result of the lack of experience which time has not permitted them to obtain.

Probably the most troublesome problem that presents itself in residential air conditioning systems is the method of condensing the refrigerant. The common methods, of course, involve the wasting of city water, the use of air cooled condensers, or the application of water cooling towers.

Water cooled condenser jobs wasting city water often have resulted in either excessive operating costs or the lack of sufficient pressure to operate the unit.

Both of these problems have led to the use of cooling towers or air cooled condensers for large areas in the country. For urban use, however, such equipment often is objectionable from several standpoints, such as unsightly appearance for outdoor locations, room space requirements in utility rooms and basements, and the problem of fan noise.

A simple but effective solution to this problem of refrigerant condensing on residential applications where some type of water saving device is required is the construction of a fountain-type spray pond attractively located somewhere in the yard, away from the house.

In such an arrangement, the water is circulated by a small pump located in the house and connected into the return line between the spray pond and the conditioning unit, and discharged into the pond with a suitable spray for evaporative cooling.

Coarse Spray Required

Conventional spray pond nozzles operating at a pressure up to 10 psi are not desirable, because they provide too fine a spray which results in considerable wind drift. This means that a margin of about 20 feet of water surface beyond the spray outlets would be required in the pond to prevent the wastage of too much water. Also, the relatively high operating pressure would require a large circulating pump.

To be used effectively with a residential cooling unit, the fountain-type spray pond must employ a nozzle pressure low enough so that a coarse spray may be maintained to minimize drift losses and so that a circulating pump of low horsepower may be utilized. In fact, spray pressure of 1½ to 2 psi is estimated to be adequate.

Size Small, Cost Low

The expected performance of such a pond with outdoor wet-bulb temperature of 78 F is the cooling of water to 90 F leaving temperature with a 10-degree rise in the system.

The size of the pond may be determined on the basis of 3 sq. ft. of basin area for each gallon per minute of water pumped. Assuming a condenser water rate of 3 gpm per ton, a 3-ton installation would call for a basin area of only 27 sq. ft., or a fountain roughly 6 ft. in diameter.

The simplest arrangement for a spray pond of this type is to lay

SIMPLE AND EFFECTIVE as a means of conserving water used in residential air conditioning systems is a back yard spray pond such as this. Water is pumped from the cooling unit to the spray ring, then is returned from the pond's drain to the circulating pump which starts the cycle all over again. Addition of make-up water is controlled by the float valve.

along the periphery of the basin a circular section of pipe drilled with a sufficient number of holes to produce a pressure of 1½ to 2 psi. Location of the holes must be such that the water spray will discharge toward the center of the basin at an angle of about 45 degrees, or so that the throw is nearly equal to the radius of the pond.

The cost of constructing such a fountain spray pond could be kept relatively low, as it need consist only of a sheet metal or concrete basin of adequate size, the necessary piping, and a generous size screen to keep out dirt and debris.

In addition, of course, it would be necessary to install a small circulating pump in the house and a float valve in the spray pond to assure the addition of the proper amount of make-up water as it is needed to replace the water lost through evaporation.

CLEVELAND UTILITY USES USERS TO SELL COOLING

Signed testimonials from commercial and industrial users of air conditioning are effectively utilized as sales aids for summer cooling in a new 8-page brochure titled "Dial Your Own Climate" being distributed by Cleveland Electric Illuminating Co. to some 30,000 of its commercial, industrial, and residential customers.

On the pages devoted to commercial and industrial cooling, owners of factories, restaurants, drug stores, and dress shops are quoted directly on the benefits which air conditioning has brought to their respective businesses. A photograph of the air conditioned establishment accompanies each testimonial.

Back page of the brochure presents a much more complete list of commercial and industrial users of air conditioning in the utility's area, and offers the assistance of the utility's engineers to other firms interested in planning which type of air conditioning system is best suited to their needs. Sketches of window, console, floor, and remote type systems are presented for comparison.

The section devoted to residential cooling is somewhat more general in nature, with principal benefits highlighted.

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted, $6.50 minimum, limit 25 words. For all other classifications, $8.00 minimum for 25 words or under, each additional word 20¢; boldface type or all capitals, $10.00 minimum for 25 words or under, each additional word 25¢.

TRAINING AVAILABLE

Course on sealed unit rebuilding trade secrets disclosing exclusive methods for all operations. $12.50 or write for details. H. Custer, Box 98, Center Line, Michigan.

EQUIPMENT FOR SALE

CLUB BARS, Polished stainless steel exterior, top sides and front. Two Perlick, chrome-finish, refrigerated beer faucets, with foam control. One push-type chrome water faucet. Capacity — 2 kegs on tap and one spare — or 2 kegs on tap and eight cases of bottles. Complete with tap rods, taps, air hose. Koroseal connectors and air manifold, with expansion valve mounted, ready for remote installation of unit. These are brand new, in original factory crates; new guarantee; close-out price — $340.00, net f.o.b. Philadelphia. Limited quantity. FOGEL REFRIGERATOR COMPANY, Philadelphia 37, Pa.

LINES AVAILABLE

Dealers-distributors; Masterfreeze Front-Opening Milk Coolers. Complete range of sizes—streamlined. Tops in appearance and performance. Masterfreeze Food Freezers-10-16-20 cu. ft. sizes. Walk-in Coolers and Freezers—custom built—any size. All very competitively priced with attractive discounts. Write Dept. CR, Masterfreeze Corporation, Sister Bay, Wis.

HONEYWELL ADDS TO SALES, SERVICE STAFFS

Twenty-two sales engineers were recently added to the field sales force of Minneapolis-Honeywell Regulator Co.'s Industrial Div. They will be located in 19 branches in 17 U. S. cities and 2 Canadian cities.

Twenty-four service engineers were also added to the firm's field force in branch offices throughout the country. The new appointees, all graduates of the company's industrial instrument training school in Philadelphia, include: Carl C. Crawford, New York; William R. Bisbee, Wichita; Russell W. Cornell and Frank M. Goble, Dallas; Charles A. Heyelman, Buffalo; Henry N. Jelinek and William G. Nash, Cleveland; John F. Johnson, Chicago; Jennings K. Lagerstrom, Kansas City; David J. McDonald, South Bend; Paul L. Meyers, Indianapolis; Billy F. Schaible, Denver; Howard P. Smith, Jr., Pittsburgh; Patrick J. Suddick, Toronto; Brian F. Trankle and Harold E. Musgrove, Los Angeles; Robert L. Woods, Milwaukee; Ellery L. Hall, Seattle, and Charles W. Gunthrope, New Orleans.

BUY FROM YOUR REFRIGERATION WHOLESALER

Baby it's gonna be cold outside!

That's right. It's time to get prepared for your big winter market . . . new and replacement Milk Cooler Controls. Your dairy and farm sales'll be hotter than a firecracker when you install Ranco controls . . . for use when temperature around the milk cooler is COLDER (or warmer) than the water in the cooler . . . built to protect milk with that just-right Ranco Temperature.

So button-up your overcoat and button-up plenty of sales with Ranco Milk Cooler Controls!

Replace it right the first time with Ranco!

RANCO CONTROLS

Ranco Inc.

COLUMBUS 1, OHIO

WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS

Circle No. 59 on Reader Service Card

HERE'S HOW!

Manifold Drier Hook-up Makes Replacing Easier

The most recent issue of Ansul Chemical Co.'s interesting *News Notes* included an article by Lou Wallace, senior refrigeration engineer, telling how one unusually large drier can be successfully replaced by a series of smaller driers manifolded in the refrigeration line. By "unusually large" is meant a drier containing 200, 300 or up to 1500 cu. in. of desiccant. These latter units may weigh over 250 lbs.

Pointing out that the servicing of these oversize driers can create a lot of problems because of their size, the fact that the service company seldom has them in stock, the moisture pick-up problem involved in replacing units of this size, and the amount of time required to accomplish the job, Wallace points out that this problem can be overcome if a series of smaller driers are manifolded in the refrigeration line.

Manifolding the driers means setting up a bank of them in parallel.

I DO IT THIS WAY

AFTER breaking several valve stems on my hermetic kit, I finally purchased a 6-inch extension of my ¼-inch socket drive which I polished and used as a stem. I haven't broken one since.

G. A. Friesenhahn, Macdona, Tex.

Wallace cites as advantages of this method: (1) Inventory can be reduced, and the serviceman can use regularly stocked driers on these special jobs. (2) The smaller driers are easier to handle. (3) Cost to both serviceman and customer is reduced. (4) Any number of these driers can be put on a line. This permits all sizes of jobs to be handled. (5) There is no more pressure drop in this type assembly than in a single large unit. (6) In servicing, a few driers can be replaced at a time, reducing moisture pick-up, which is serious when a single large unit is removed from the line.

WANT TO EARN $5?

You don't have to be a literary genius to pick up a fast five-spot. All you have to do is jot down some of the shortcuts you've developed in your maintenance or installation work and send them to Here's How Editor, Commercial Refrigeration and Air Conditioning. If the Editor votes "yes" on your contribution, your $5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!

Which Compressor Repairs Should be Made in Field?

Different servicemen usually have different ideas even among themselves as to which condensing unit repair jobs are best done in the field, and which jobs it is best to return to the factory. Needless to say, manufacturers have still another set of ideas on the subject.

Here is what Tecumseh Products Co. has to say on this subject concerning its FFN, FFP, VD, VF, VFP and VFPH compressors:

"It is our recommendation," the company says, "that field or shop service repairs be limited to the following and that if other repairs are needed, the compressor be replaced and returned to the factory for repairs:

"1. Replace seal assembly in its entirety.

"2. Replace valve plate assembly.

"3. Replace any or all gaskets.

"4. Replace oil pump assembly.

"5. Replace line valves.

"6. Replace oil sight glass.

"7. Replace strainer.

"8. Wash out compressor and change oil.

"9. Dehydrate to remove moisture.

"The above leaves the replacement of shaft, main bearings, cam, rods, or pistons, and pins as the only operations we feel need to be done in our factory."

I DO IT THIS WAY

MANY of the men in our service shop used to make a practice of coming up to the stock counter with screws and nuts in their hands, asking for duplicates without having any idea of the proper sizes. As a result, considerable time was wasted.

Now we have solved this problem by fastening samples of all our standard sizes of screws and nuts to a display board, with the size of each clearly marked. All the mechanic has to do is match up the screw or nut he has with one on the board, and then ask for it by its proper size.

Al Gilling, Long Island City, N. Y.

Alter Customers Get Answers To Questions

POPULAR WITH SERVICEMEN were the recent series of "Question Bees" conducted by The Harry Alter Co., Chicago parts wholesaler. Conferring here are (top, left to right) William Krueger, A-P Controls Corp., and Ken Larwin, Refrigeration Maintenance Corp.; Frank Bork, Borks Refrigeration, and Irving Wilson, Tecumseh Products Co.; Howard Huberger, Drexel Ice Cream Co., and Richard Nelson, Imperial Brass Mfg. Corp.; (bottom) Carl Bechtold, Jarvis Refrigeration, and Frank Williams, Linde Air Products Co.; Walter Shrum, Howard Shilling, Penn Electric Switch, and George Barr.

* * *

A series of three-day "Question Bees" at which refrigeration parts and supplies manufacturers set up displays and provided representatives to answer questions was held by Harry Alter Co., Chicago parts wholesaler.

"We arranged with the manufacturer to set up an interesting educational exhibit at our wholesale parts counter and they had one or two representatives to talk to our customers and answer their questions about their particular products", explained Irving Alter.

Each of the four question bees was held for a period of three days in the middle of a week in each case. No more than five manufacturers participated in any one bee. Manufacturers who furnished displays and representatives for the four sessions included: A-P Controls Corp.; Imperial Brass Mfg. Co.; Tecumseh Products Co.; Ansul Chemical Co.; Chicago Seal; Linde Air Products Co.; Ranco, Inc.; Standard Refrigeration; Chromalox; Duro Metal Products Co.; Penn Controls, Inc.; Detroit Controls Corp.; Paragon Electric Co.; and Wabash Mfg. Co.

Alter notified his customers of the question bees through jumbo-sized postal cards. These cards told customers which manufacturers would be represented and what products would be displayed. They also carried an invitation to come in at any time during the three days and ask questions about the products displayed. The manufacturer's representatives explained and demonstrated their products, and helped customers solve their problems. Alter emphasized that the question bees were completely informal and were not a meeting.

NEW RESEARCH CENTER FOR WESTINGHOUSE

Westinghouse Electric Corp. has recently begun construction on a three-story, L-shaped building which will house the firm's new Research Center. The Center, scheduled for completion in early 1955, will be located about 10 miles east of downtown Pittsburgh.

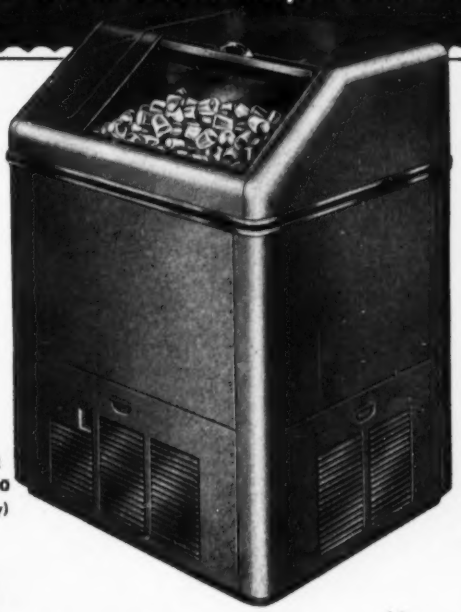
The new facilities will be about one-third larger than the present laboratories, and will have room for further expansion. In addition to laboratories and offices, the building will contain an auditorium capable of seating 250 persons, a cafeteria of similar size, and a large technical library.

PRESENTING....

THE NEW SCOTSMAN *Super Cuber*

BY THE MAKERS OF SCOTSMAN *Super Flakers*

NOW! YOU KEEP THE PROFITS FROM ICE MAKER SALES!



SUPER CUBER
MODEL SC-100
(110 lbs. daily)

SUPER CUBER
MODEL SC-200
(225 lbs. daily)

NEW!

- **Uniform Full Size Cubes**—regardless of air or water temperature!
- **Lowest Operating Cost**—2½ qts. of every 3 qts. of water used is made into perfect ice cubes!
- **Less Service Cost**—No water is reused...no cleaning problems . . . no seasonal adjustments!
- **Lowest Installation Cost**—requires only ¼ inch water connection and ⅜ inch drain connection!

SCOTSMAN
AUTOMATIC ICE MACHINES
AMERICA'S MOST COMPLETE LINE!

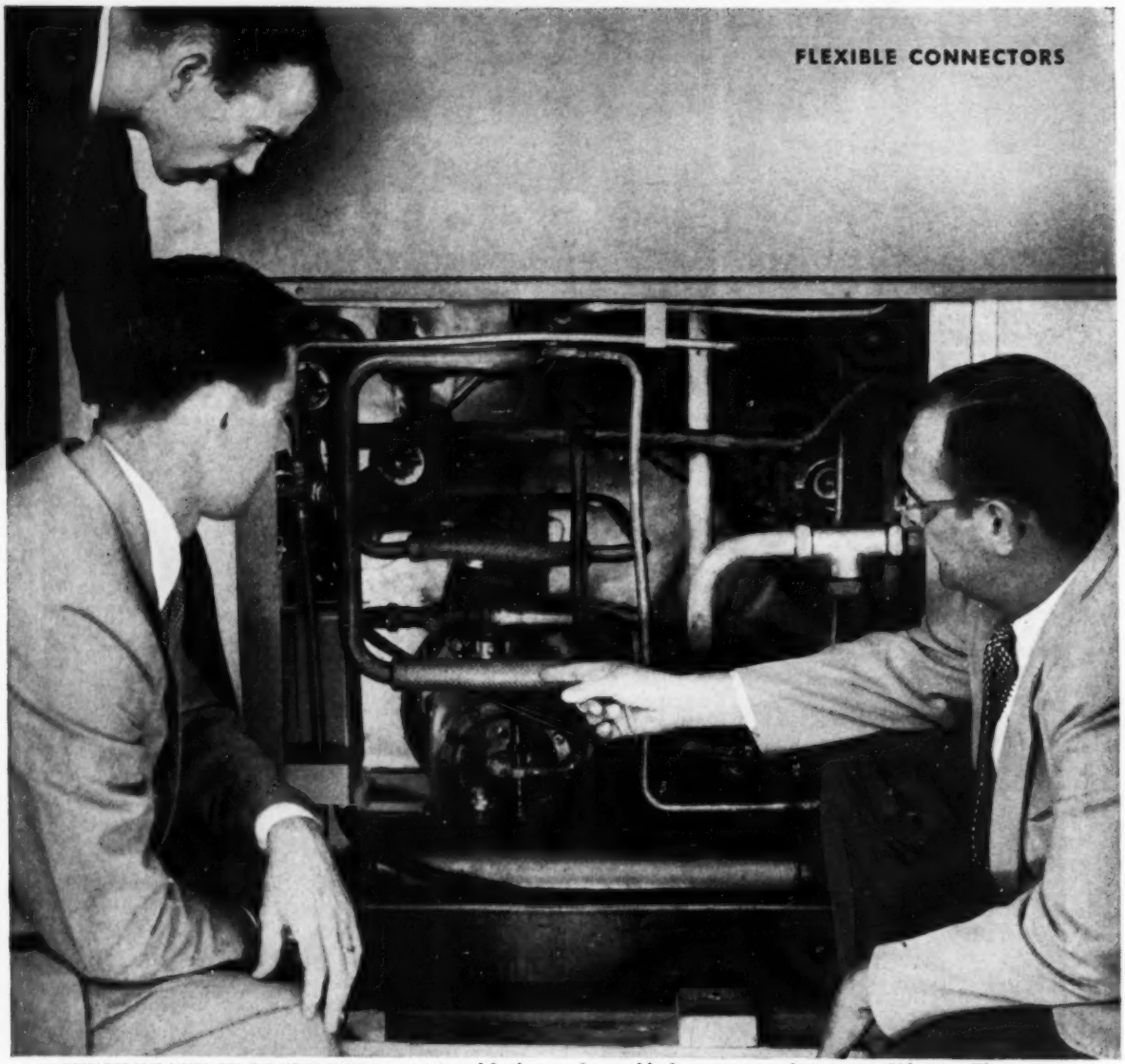
SUPER FLAKERS SUPER CUBERS

THE PERFECT CUBE!
CLEAR!
SOLID!
ROUND!

Every cube is full, uniform size.
Solid cube—longer lasting.
Round cube—easier-to-handle.
The finest, all-purpose cube!

WRITE TODAY! AMERICAN GAS MACHINE CO., DIV. OF QUEEN STOVE WORKS, INC. • ALBERT LEA, MINN.

Circle No. 8 on Reader Service Card



REFRIGERANT LINES ON G-E HEAT PUMP are equipped for long, safe, trouble-free service with American Vibration Eliminators.

G-E Heat Pump works in a whisper with American Vibration Eliminators

It heats—it cools . . . *without burning fuel!* General Electric's new heat pump uses only air and electricity. To cool, it pumps heat to the outdoors. To heat, it takes warmth from "cold" outdoor air. And it works in a whisper . . . none of the usual vibration and noise you expect from a man-size compressor.

American Seamless Flexible Metal Connectors—called Vibration Eliminators—absorb and dampen this noise and vibration in the piping . . . as well as provide for expansion. They guard refrigerant lines against fatigue-cracking. Seamless and pressure-tight, these connectors convey costly Freon safely. They come in standard copper tube sizes, and can be easily and permanently installed.

G-E Engineers report complete satisfaction with these connectors—as do many others in the air-conditioning and refrigeration field, from design engineers to servicemen. For more specific information on how American Vibration Eliminators can be adapted to your requirements, write for Bulletin VE-310R to: *The American Brass Company, American Metal Hose Branch, Waterbury 20, Conn. In Canada: The Canadian Fairbanks-Morse Co., Ltd.*

53243

WHEREVER CONNECTORS MUST MOVE

AMERICAN

flexible metal hose and tubing

an ANACONDA® product

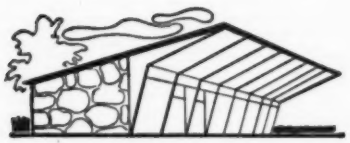
Circle No. 63 on Reader Service Card

COOLING

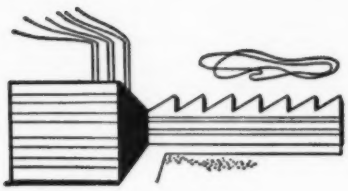
Circulation and Humidity Control

HEATING

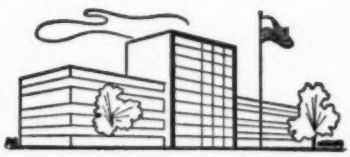
AIR CONDITIONING *Section*



COMMERCIAL



INDUSTRIAL



INSTITUTIONAL

RESIDENTIAL

TABLE OF CONTENTS

THIS SPECIAL SECTION will be devoted to all phases of Air Conditioning — Residential, Commercial and Industrial, including both self-contained packaged units and central-station type equipment for seasonal or year-round application.

It will include information on the merchandising, selling, installation and maintenance of Air Conditioning equipment, reports on the New Products which are being introduced in this field, and announcements of Literature available from manufacturers.

Our readers have shown they appreciate this new service, and the convenience of being able to locate quickly all the information on Air Conditioning in each issue in this special section of COMMERCIAL REFRIGERATION AND AIR CONDITIONING.

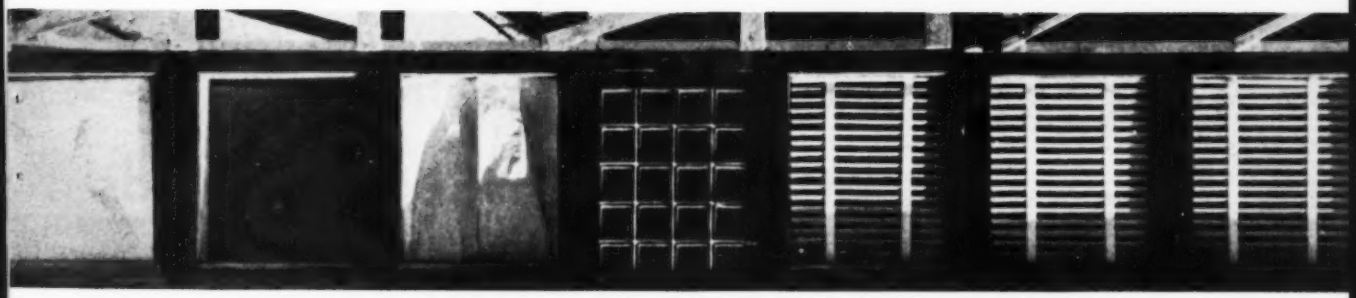


FIG. 1—GENERAL VIEW of equipment used in solar heat absorption test, showing various types of window treatment installed in test cells.

Effect of Window Treatment On Air Conditioning Loads

by Francis S. Dammers
District Manager
Hunter Douglas Corp.

MODERN technology, mainly by way of steel columns and reinforced concrete, has done away with much of the supporting function of walls, freeing the way for the architect to use large glass panels. These new methods of design, however, have created major new problems, especially in relation to excessive solar radiation, a primary concern to anyone planning the air conditioning of such a structure.

The importance of the effects of direct and reflected solar radiation through transparent windows on the space cooling load has been early recognized as a major problem by the air conditioning industry. The necessity of making a reasonable estimate of the magnitude of this part of the cooling load has led various industry organizations to take part in extensive studies of the problem.

The first results of this work were published about 1932-34, with investigations still in progress. As a result, we are now able to predict with an accuracy well within 10% the heat which will enter by way of ordinary glass windows, with and without shading.

Studies have shown that ordinary window glass absorbs as much as 16.7% of the radiant heat striking it perpendicularly, while all unabsorbed radiation is either transmitted or reflected. Preventing solar radiation from adding to the cooling load by means of the most efficient window treatment is a point of great interest, and considerable research on different types of window shading has been carried out.

In connection with such research, a study of "Heat Gain Through Western Windows With and Without Shading", made by F. C. Houghton and printed in the Journal of the American Society of Heating and Ventilating Engineers, is of particular value.

Recently, Georgia Institute of Technology made available additional information as a result of research which was sponsored by Hunter Douglas Corp., whose activities lie in the field of engineering of Venetian blind materials. These test results have made available much *new* information of value to the air conditioning industry.

As shown in Figure 1, tests were made by means of 10 insulated chambers with built-in thermostatic equipment to register inside temperature, each chamber using a different type of available window treatment to cover clear window glass: drapes, shades, glass blocks, and different types of Venetian blinds. Figure 2 shows some results of this test.

Under actual living conditions, however, a window will have to fulfill its primary function of entering daylight; therefore, a blind tilted at 45 degrees should in all fairness be compared with a window shade half drawn. This is exactly what Mr. Houghton did in his aforementioned report.

Figure 3 is copied from his report showing a radiation gain of the roller shade above the Venetion blind of nearly 20%. Also

See test results on next page ▶

Tests Show How Window Treatment Affects Air Conditioning Loads

FIG. 2 — Effect of various window treatments on the temperature of rooms.

FIG. 3 — Radiation gain in percent of solar radiation for inside Venetian blind and inside half-drawn roller shade.

FIG. 4 — Radiation gain in Btu per sq. ft. per hour and in percent of solar radiation intensity of window with aluminum inside Venetian blind and with dark green inside roller shade.

FIG. 5 — Effect of color of aluminum Venetian blind on test cell air temperature.

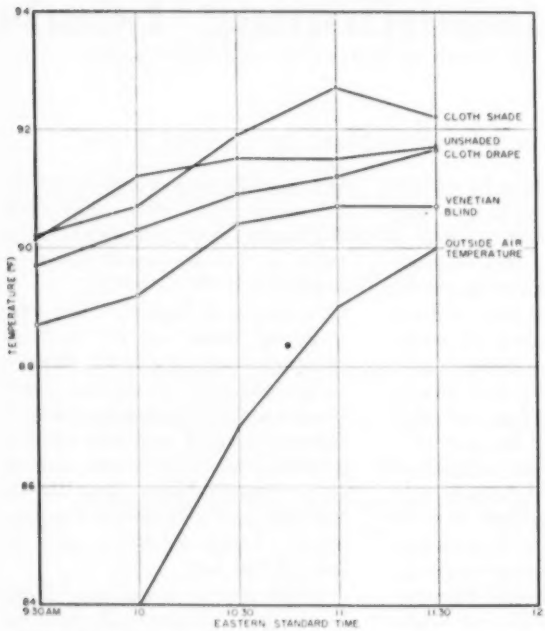
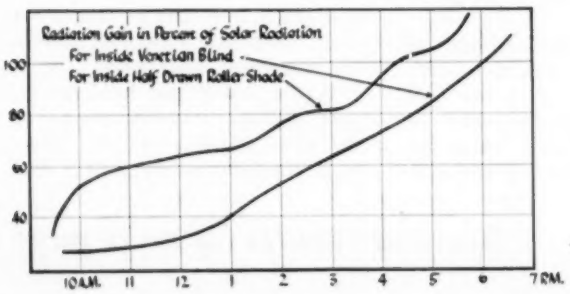


FIGURE 2 ▲

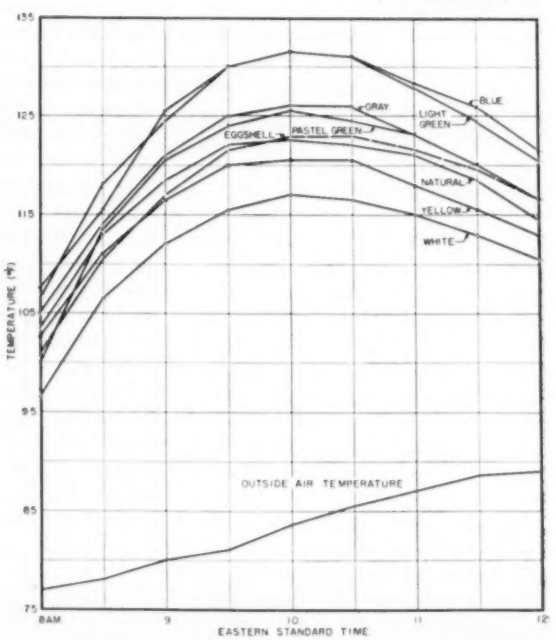
▼ FIGURE 3



	INSIDE VENETIAN BLIND ALUMINUM FINISH		INSIDE ROLLER SHADE DARK GREEN	
SUN TIME	BTU	PER CENT	BTU	PER CENT
9-10	5.3	24.0	6.8	30.7
10-11	6.3	26.4	10.0	41.7
11-12	7.1	28.2	15.1	60.4
12-1	20.7	34.5	38.8	64.6
1-2	55.3	45.0	83.9	68.2
2-3	106.2	59.0	144.4	80.2
3-4	136.0	66.0	166.0	80.6
4-5	133.9	72.0	153.5	82.5
5-6	98.4	82.0	115.2	96.0
6-7	36.4	91.0	46.0	115.0

FIGURE 4 ▲

▼ FIGURE 5



evident from the partial reproduction of this table on heat gain for several window treatments, Figure 4, is the radiation gain expressed in Btu and percent of solar radiation intensity of the window.

However, any discussion of the problem of solar radiation is not complete without including the influence of different colors in their heat transmitting capacity.

Figure 5 shows Georgia Tech's findings on variation of temperature inside the test chambers by using differently colored Venetian blinds. With due allowance to the size of the window opening and cubic foot contents of the chambers, discrepancies as high as 10% were registered due solely to the use of different colors in the blinds.

While under actual room size the obtainable reduction in temperature might not be that dramatic, a clear indication is given that selection of the proper colors for window treatments should be brought under architectural supervision.

All Factors Studied

It must be understood, of course, that the effect of solar radiation on indoor temperature is influenced by many factors, such as insulation, air circulation, humidity, and building materials used, as well as light or dark colors, all of which will reflect or absorb heat in different degrees. Thus the ability of a steel or aluminum Venetian blind, or cloth shade, to reduce indoor temperatures by stopping solar radiation is not easily figured.

In order to rule out the many qualifying and irrelevant factors contributing to room temperature, Hunter Douglas Corp. had the Electrical Testing Laboratories of New York carry out a series of tests primarily concerned with the relative merits of window covering *materials*, such as aluminum, steel, and shade cloth. It can be assumed that the most efficient of these will naturally serve the most practical purpose in architecture to keep air and surface temperature at a minimum, assure more comfort, and reduce load on air conditioning systems.

This test refers to the materials themselves, and should have important bearing on the selection of window coverings. Solar radiation entering through the window glass strikes inside objects and surfaces, being absorbed by them and in turn being radiated back. Therefore, the aim is to look for a material which tends to stop rays at the window by reflecting them to the outside, rather

Continued on page 104

Year-Round Conditioning Grows With New Home Development

Year-round air conditioning is used as the chief promotional feature of the 96-home development in **Oak Park, Mich.** Depending on the size of home being built, **Airtemp** units of 2 and 3-ton capacities are being offered as optional equipment to owners.

The prototype home that has been opened to the public is air conditioned. Homes in this group are priced from $15,900 to $18,500.

The air supply system is of the high-wall and low-wall register type especially suited for year-round air conditioning. The Airtemp heating and cooling systems are tucked away in a corner of the basement utility room.

•

Encompassing at least 30 homes, a new development featuring **Carrier** year-round air conditioning has been opened in **Daylesford Village, Pa.**

Situated on a full half-acre of ground these three-bedroom ranch type homes will contain 2-ton Weathermaker units. The homes are priced at $16,500.

Housing features include a combination stucco and stained siding, storage attic, large garage, abundant electric outlets and other features available only through construction provisions available with year-round air conditioning.

•

Three-bedroom, ranch-type brick structures, the first of a planned 64, have been opened in both **Silver Springs** and **Bethesda, Md.,** by Duffy Brothers, Inc. and by J. C. Duffy, Inc.

The buildings are selling at $25,950 and up, with the down payment set at only $4,450, approximately 15% of the total cost. They incorporate **Carrier** Weathermaker 2-ton, gas units.

A complete electric Hotpoint kitchen, featuring an electric dishwasher, garbage disposal unit, 40-inch range and refrigerator with a freezing department are integrated in these completely year-round air conditioned residences.

Individual design and colors used in these homes varies with the advantages provided with the air conditioning system.

Six of the better-known major residential subdivision builders in **St. Louis** have joined **Carrier Corp.** and their local distributor to present completely air conditioned display homes in all parts of the city ranging from $12,000 to $20,000 in price.

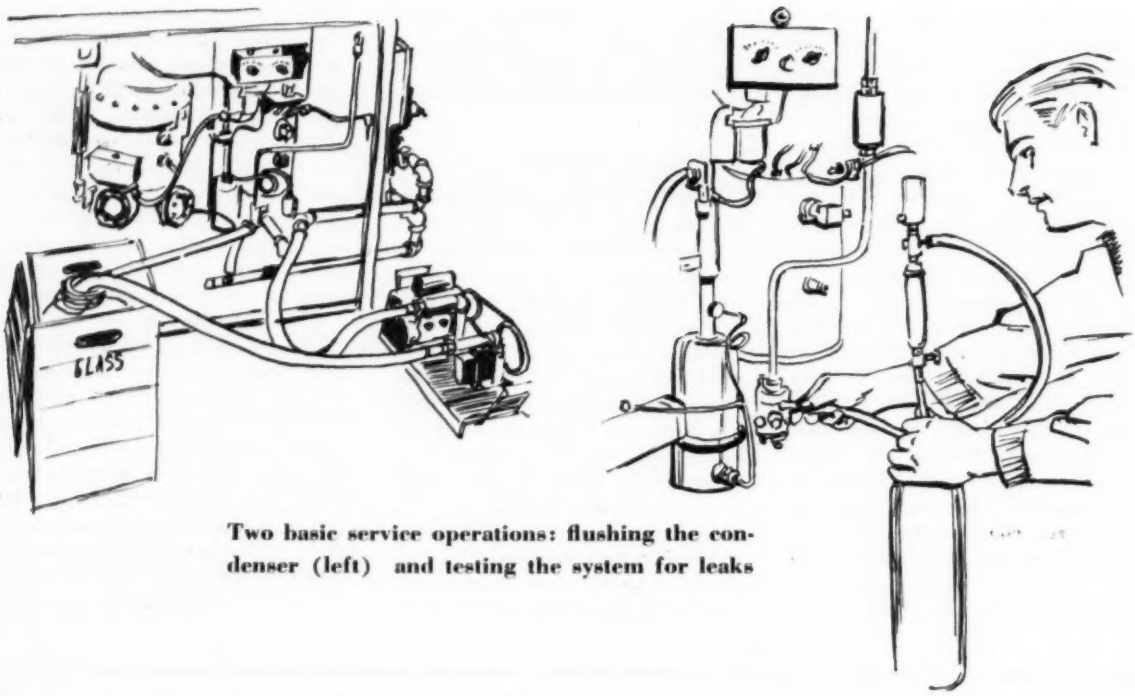
The six subdivisions total about 1000 possible homes, all of which feature Carrier's Weathermaker air conditioning unit. This initial mass opening in St. Louis was decided upon because of the city's record acceptance of residential air conditioning last year. One builder last fall sold 58 of 69 homes in his Weathermaker subdivision by the end of the first day of his public showings.

•

The Briar Woods development of 40 homes air conditioned by **Carrier** Weathermakers was opened June 7 at **White Plains, N.Y.,** by Simon Berstein, builder. The 3-bedroom homes sell from $28,000. Weathermaker 2-ton units provide year-round air conditioning for the dwellings.

The exteriors of the homes are

Continued on page 104



Two basic service operations: flushing the condenser (left) and testing the system for leaks

Testing and Service Methods for Package Air Conditioners

Part 2: The Refrigeration Equipment

by Edward Dowis

THE operating characteristics of the various makes and types of package air conditioners are similar enough to permit a fairly standardized procedure for testing, adjustment and repair. Often the conditions observed in operation of a faulty system give the only needed indication of the service required. There are characteristics of air conditioning refrigeration which differ from lower temperature systems and which need to be considered by the serviceman.

The troubles which may develop in the refrigerant circuit of a properly designed package conditioner may be broadly classified as follows:

1. Defective or inoperative compressor.
2. Defective or dirty condenser.
3. Water valve, piping or supply out of order.
4. Restriction, usually at filters or driers.
5. Improper refrigerant charge.
6. Defective or improperly adjusted expansion valve.
7. Improper lubrication.
8. Leaks anywhere in the system.
9. Moisture.

Compressor Service

The nature and extent of field service possible on a compressor is determined by whether or not it is conventional, sealed accessible or hermetic. Most compressors in larger package units are equipped with service valves and/or gauge ports, making it possible to determine pressures and estimate efficiency.

The usual compressor test is to close the suction valve and determine how low suction pressure it will pump and whether it will hold it after the compressor stops. A rise in suction pressure when the compressor stops, after refrigerant has been pumped from the oil, indicates

a leaky discharge valve. The compressor should be run intermittently if oil tends to slug as the pressure is reduced. A good compressor will pump close to a perfect vacuum.

THE DISCHARGE SERVICE SHOULD BE CLOSED ONLY AFTER THE COMPRESSOR HAS BEEN STOPPED. Fatal accidents have resulted from closing the discharge valve with the compressor running, due to the high hydraulic pressures built up by a combination of inertia and entrapped oil and refrigerant. After pumping out the compressor, with both valves closed, the valve plates can be removed, repaired or replaced in the sealed accessible (commonly called accessible hermetic) and conventional compressors. Oil seals can be replaced on the conventional types.

A complete dismantling job, including the motor, can be done on the accessible types. Mechanical service on conventional and accessible compressors, aside from valve plates and seals, is performed in the same manner as other precision machine repairs. Hermetic compressors can be repaired by cutting open the sealed housing but the time required without special fixtures, usually makes this kind of service more costly than replacement.

Condenser Service

Most package conditioners have shell and coil, water cooled condensers. The combination condenser and receiver consists of a shell for containing the refrigerant, inside which is a coil, usually finned, through which water is circulated. This condenses the vapor and cools the liquid.

The most common service operation affecting the condenser is the removal of non-condensible gases (usually air). The presence of these gases will cause high water consumption or, if water supply is limited, high head pressure and loss of efficiency.

In order to check for the presence of non-condensible gases, attach a pressure gauge to the condenser gauge port or wherever it will read condenser pressure. Shut off the liquid line valve and suction or condenser inlet valve if condenser pressure can still be read on the gauge. Install thermometers where they can read water inlet and outlet temperatures. Open the water valve until water circulates freely and watch thermometers until inlet and outlet temperatures are the same.

The pressure should then be that corresponding to the water temperature, for the refrigerant used. Any considerably higher pressure indicates the presence of air, which should be purged until pressure corresponds to water temperature.

Deposits of dirt or minerals on the water side of the condenser coil will also cause high water consumption and high condensing pressure. As water is heated in the condenser, it tends to deposit the mineral salts it holds in solution. This deposit acts as insulation and also retards the flow of water.

"Good heavens, man—how long does it take you to fix an air conditioner?"

To test for a dirty condenser coil, arrange a thermometer to read the discharge water temperature and a pressure gauge to indicate the head pressure. Operate the conditioner with a normal load (a 35° to 40° coil temperature). Check the temperature which corresponds to the operating head pressure. If this exceeds the discharge water temperature by more than 10°, it is an indication that the coil should be cleaned.

Condenser coils can be cleaned by draining and disconnecting from the rest of the system. Dilute acid can then be circulated through the coils. The kind of acid and strength of solution will be determined by the nature and thickness of the deposit. For best results consult a water treatment chemist or company familiar with the nature of the water being used.

If a pump can be secured, which will handle the acid solution, it can be recirculated for several hours. Not having such a pump, the writer has arranged a funnel at an elevated position and poured the solution into it, letting it flow through the coil by gravity and flushing with water intermittently. Extreme care must be taken when handling acid or alkaline solutions, to avoid personal injury or damage to equipment. Goggles, rubber gloves and a rubber apron should be worn.

Water Supply and Regulation

Except where an evaporative condenser or cooling tower is used, water supply is usually regulated by a pressure-actuated water valve. A bellows, connected to the high pressure side of the refrigerant circuit, operates the valve. An adjusting nut regulates tension on a spring opposing the bellows and can be set to throttle at any desirable pressure.

When the compressor stops, pressure falls below the setting and closes the valve. When started, the valve opens at the pressure for which set. As the pressure tends to rise, more water is admitted, keeping the pressure practically constant. A setting of 125 lbs. per sq. in. is usual for F-12 units.

Water valves are usually trouble-free if clean water is used. They may occasionally stick shut or open or leak. They can be readily dismantled for inspection and repair. When setting, simply install a high pressure gauge, put the system into normal operation, and adjust the valve until desired pressure is obtained. On hermetic systems, where a pressure gauge cannot be used, adjust the valve until the discharge water temperature stays at about 95 F.

Inadequate water piping, high inlet water temperature or low water pressure may prevent enough water passing through the condenser to remove the heat and the pressure may rise or motor overload protection stop the compressor even though the water valve is wide

Continued on page 105

LOOK WHAT'S HAPPENING IN YOUR COOLING TOWER

HERE'S WHY KOPPERS PRESSURE CREOSOTING ON HALSTEAD & MITCHELL COOLING TOWERS IS VITAL FOR LONG LIFE

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WHY KOPPERS PRESSURE-CREOSOTING?

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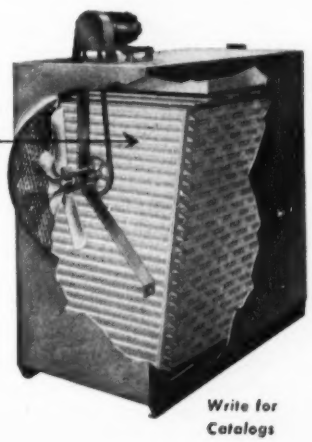

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Circle No. 65 on Reader Service Card

THE HEATING SIDE OF AIR CONDITIONING

By Wm. Henry Knowlton

Basic Advantages of the Heat Pump For Year-Round Air Conditioning

AT THE summer meeting of the American Society of Refrigerating Engineers an industry spokesman predicted that "by 1960 more than 200,000 heat pumps could be sold annually at an installed price of less than $2,000." Whether or not this estimate is overly optimistic, we have no way of knowing, but we do know the refrigeration and air conditioning fraternity has been slow to accept one of the finest methods of heating ever devised by the mind of man. It is true that in many situations the heat pump cannot be competitive in operating cost, due to the local power rate and other factors, but dealers and contractors who offer the heat pump in situations where it is economically sound are due to obtain a splendid volume of business.

First, let us consider the use of the heat pump in new construction. While most industry spokesmen look to the residential market for heat pump volume, acturally it is the building that will be fully equipped with summer air conditioning that is the best prospect for a heat pump application. This would include schools, motels, banks, offices, and other small commercial buildings, as well as residences.

The reason for this situation is simple. Once the owner has decided to spend so many dollars for summer air conditioning, he can reverse his cooling system and use it for heating without the cost of a boiler or furnace, chimney, and other expensive items. His initial cost may be considerably lower than a combination heating and cooling system, and with favorable power rates and a satisfactory heat source, his operating costs will be no greater.

Space Savings Important

Another very important consideration, particularly in small commercial structures, is gaining the additional space which would otherwise be occupied by bulky heating equipment. As a case in point, a heat pump was selected for use in a branch drive-in bank, located in Michigan, because the very conservative bankers decided the basement of the building should be made available to local business groups for meetings. Following the initial decision to air condition the building, the banking group quickly saw the many advantages of a "reverse-cycle" or heat pump system.

An additional factor that is very important in both commercial buildings and residences is the cost of cleaning and re-decorating the interior of the building, and its furnishings. For many years the automatic heating industry has made great advancement by making it possible to reduce the cost of cleaning and decorating. But it must be admitted that with any fuel, oil or gas, a certain residue which results from normal combustion will be deposited inside the building over a period of time. With the heat pump there is no flame, and absolutely no residue . . . so cleaning costs will be held at an absolute minimum.

Consider the case of a man who plans to build a modern air-conditioned motel. He is already making an outlay for enough refrigeration capacity to both cool and heat the building. Storage space is at a premium. From the standpoint of upkeep, cleaning and redecorating are two of his largest expenses. As the units are heated only when occupied, operating cost is no considerable factor in his thinking. Properly approached with a sound proposition, this man will immediately see the wisdom of a heat pump installation, and will buy.

Up to the present time three sources of heat have been used in heat pump installations including the earth itself, outside air, and water from a well, lake, or river. Each method presents certain advantages and disadvantages.

Coils placed in the ground are expensive to install, and their efficiency will vary according to soil conditions and moisture content of the earth. While installations of this type have been successful, currently they are not recommended by most

of the equipment manufacturers promoting the sale of heat pumps.

Systems using outside air as a heat source are already coming into fairly widespread use. These have the advantages of low installation cost, but in many instances require the use of auxiliary heat when the outdoor temperature goes below 25 F. For example, a residence located in Tennessee might be heated with a 3-hp unit over 95% of the time — but at such times a 5-hp system would be required. In this situation it would be much better to use electric strip heaters to get over the heating peak, rather than install additional horse power that would only be used a small fraction of the year.

Defrosting Problem Solved

Another consideration of outside air systems is the natural formation of frost on the coil cooling the outside air. As the demands on the system and the weather are both unpredictable, a time cycle for defrosting would not be satisfactory. One manufacturer at least has solved this problem by designing a switch that is sensitive to static pressure differences. When the static pressure over the coil goes down to a certain point, the system reverses for a short period while condensing heat removes the frost. The control is claimed to be highly satisfactory.

Water Temperature Constant

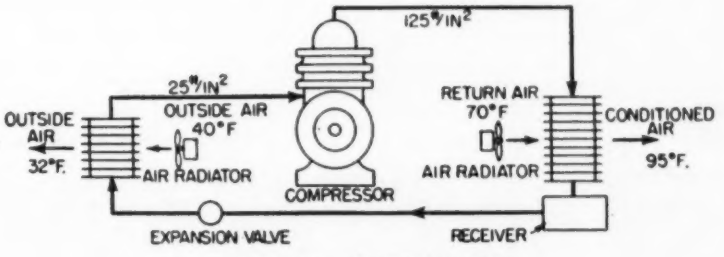
Where an adequate supply of water is available, however, the heat pump has the advantages of improved operating characteristics. Water from a well, lake, or river maintains a fairly even temperature despite the weather. It becomes obvious that it costs less to reduce well water from 52 F to 48 F — the normal operating range of a heat pump, than to reduce outdoor air from 30 F to perhaps 25 F to extract the necessary heat.

At the same time, consideration must be given to the cost of pumping the water and returning it to the well. This cost will, of course, depend upon the depth of the well which governs the size of pump necessary to produce an adequate water supply. In many situations where a heat pump is installed, the

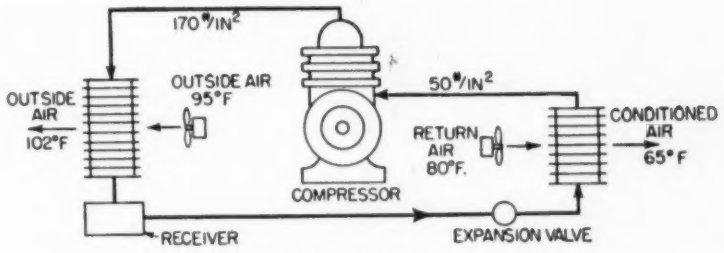
How does a heat pump operate?

Here are some of the basic cycles

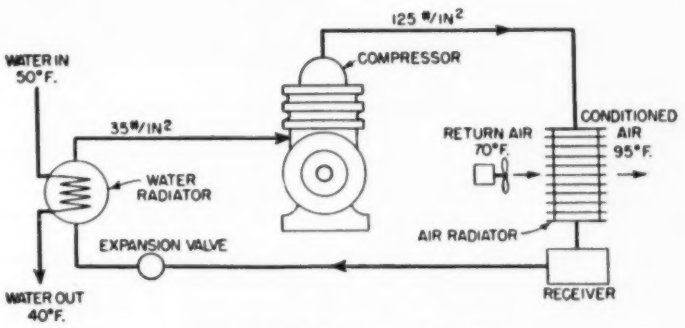
(By permission from "Heat Pump Applications" by Kemler and Oglesby, copyright 1950, McGraw-Hill Book Co., Inc.)



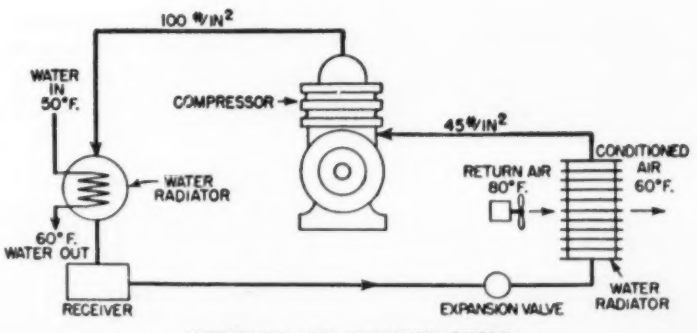
AIR TO AIR, HEATING CYCLE



AIR TO AIR, COOLING CYCLE



WATER TO AIR, HEATING CYCLE



WATER TO AIR, COOLING CYCLE

building has its own well anyway, for drinking water or perhaps for the domestic water supply.

There are endless cases where summer air conditioning is installed, that a heat pump system would be highly desirable for between-season heating. All through the southeast, south, and southwest, systems can be designed that depend upon the heat pump for the majority of their winter requirements, and utilize a boiler or furnace only when a "norther" as it is called, comes along to create a sharp drop in the outdoor temperature. With an air handling and heat exchange system that is adequate for both heating and cooling already in place, the size of the boiler or furnace which supplies extra heat during a small portion of the season may be sharply reduced.

To take a case in point, Let's assume the total load on a given building (figured from zero) is 100,000 Btu's in coldest weather. Now assume that the heat pump will handle 60,000 Btu's capacity. Further, a study of the average degree day charts shows the location only has 20 to 30 days per season where the load exceeds 60,000 Btu's. In this case a boiler or furnace may be installed that has only 40,000 to 50,000 Btu capacity, instead of enough to carry the full load on the building. This is a considerable saving in equipment cost.

From the above discussion it should be obvious to the heating and air conditioning contractor that many factors should be considered before a heat pump is recommended to any owner . . . whether the building is new or old. Briefly, these are:

1. Cost of electric power; 2. mean outdoor temperature; 3. seasonal peaks in winter; 4. source of heat — air or water; 5. cost of pumping water; 6. need for additional space in building; 7. Insulation of building and windows; 8. total initial investment; 9. Advisability of between-season use; 10. cost of cleaning and decorating.

On the all-important factor of operating costs per year, for both heating and cooling, it is always advisable to consult local utility company engineers, giving them the design conditions and operating characteristics of the proposed heat pump system. They will then be able to give the prospective owner a fairly accurate projection of expected year-around costs.

G-E OPENS HEAT PUMP BRANCH IN BIRMINGHAM

A heat pump sales branch has been opened in Birmingham, Ala., by General Electric in line with the company's marketing development program for the new all-season air conditioner. The Birmingham office-showroom is the first of a limited number of such sales branches to be opened throughout the country by G-E, according to H. M. Brundage, general manager of the company's heat pump department.

The sales branch is temporarily located at 2854 South 18th St., Homewood, and will shortly move to permanent quarters at 2846 on the same street. J. M. Hand, Jr., is manager of the branch and F. C. Johnson is application engineer.

USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

FIBERGLAS DUCT INSULATIONS are thoroughly described and illustrated in catalog IN6.A1 presented by Owens-Corning Fiberglas Corp. Step-by-step installation instructions with drawings illustrating each method are featured. Included are instructions for fabricating and applying type PF and coated duct insulation to duct interiors both squared and curved. Diagrams also show the method of sealing joints. Flexible duct liner is also described.

Circle No. 101 on Reader Service Card

4-ROW AIR CONDITIONING COILS for use where built-up systems are used with duct distribution are presented in a 4-page brochure by Tenney Engineering, Inc. The brochure covers coils of five capacities (2, 3, 5, 7½, and 10 tons) and 11 sizes, for both F-12 and F-22 refrigerants. Construction features, application data, styles available and complete specifications are included.

Circle No. 102 on Reader Service Card

SMALL COOLING TOWERS for installation with commercial and residential air conditioning systems are presented in a 4-page booklet by Marlo Coil Co. Describing the "Thrifti-Tower", cooling tower, the bulletin contains photos of component parts with descriptions and performance of each part. Capacities, ratings, and engineering data are also included.

Circle No. 103 on Reader Service Card

FEED PUMPS for addition of chemical solutions to water are detailed in bulletin PM20 offered by Precision Machine Co. Complete descriptions are included with a photograph showing the breakdown of the pump head assembly. Both single and double head models are covered, with complete specifications, performance data and installation particulars listed.

Circle No. 104 on Reader Service Card

A SELECTION CHART for room air conditioners which is designed to simplify selection of the proper size air conditioner required for different size rooms is available from Quiet Kool Div., Quiet-Heet Mfg. Corp. Included factors are map location, direction exposure, day or night operation, ceiling heights, floor area in sq. ft., amount of insulation and window area, and room placement.

Circle No. 105 on Reader Service Card

COMPLETELY SUBMERSIBLE sump pumps with a "No-Float" switch that automatically starts and stops pumping are described in detail in Circular 12 presented by Kenco, Inc. Featuring model 109 pump, the circular contains drawings which show how the special switch operates and cutaway photos of the pump and switch.

Circle No. 106 on Reader Service Card

(Turn to page 90 for more Useful Literature)

WHAT'S NEW...

in Air Conditioning Equipment

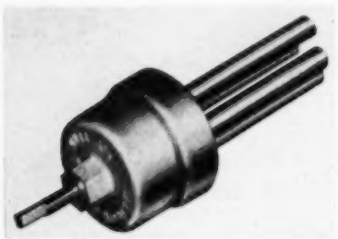
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

(For more NEW PRODUCTS turn to page 93)

Heat Pump Valve

Product: Four-way heat pump valve for reversing refrigeration cycle in room air conditioners to give warm air as well as cool air.

Manufacturer: Barusch Mfg. Co., Miami, Fla.



Features: Heats in cool weather, cools in hot weather. Manual operation. Rotor design valve has two lapped surfaces. Port connections: 3/8" for high side and 1/2" for low side. May be installed in any position. Easily installed in any existing 1/3 to 1-ton room air conditioner. Entire valve guaranteed for 5 years.

Circle No. 111 on Reader Service Card

Fan Motor

Product: Model 5000 fractional-hp motor designed for fan duty in air conditioners, window fans and other similar applications.

Manufacturer: Electric Motor Corp., Div. Howard Industries, Inc., Racine, Wis.

Features: 6-pole shaded pole motor has drawn steel housing, self-aligning bearings. Available as either single or two-speed motor, with or without rubber mounts and resilient base and overload protection. Standard speeds of 1050 rpm with second speed of 800 rpm. Currently being used by several manufacturers of air conditioning units and ventilating type window fans. Available in hp ratings of 1/15, 1/12, 1/10, and 1/8-hp.

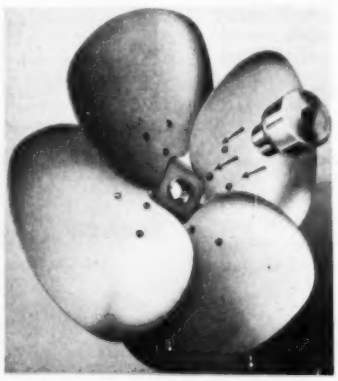
Circle No. 112 on Reader Service Card

Fan Hub

Product: "Burdco" reversible, interchangeable fan hub.

Manufacturer: Alan E. Burdon Co., Inc., Los Angeles, Calif.

Features: Hub consists of two major parts: one is swedged into fan spider, the same as standard type hub; the other fits into the first to make a complete hub and is removable. The second part can be



installed from either side to make a front or back assembly. Two special self-tapping screws lock the two parts together. A set-screw locks the inner part to motor shaft. Screws inserted from front side of fan blade are removable and can be re-used. Makes removal of fan blade from the front easy. Hubs available in standard bore sizes. Blades designed to fit adjustable hubs are available in either rigid or rubber mount.

Circle No. 113 on Reader Service Card

Baseboard Convector

Product: "Floor-Level" baseboard convector.

Manufacturer: Rempe Co., Chicago, Ill.

Features: When installed, cover rests on floor allowing carpet to be laid up to convector cover instead of under it. Air stream outlets are in front and on slanted portion of cover to direct warm air away from wall, thus keeping walls clean. Cover is 3" wide by 8" high. Practicable for all types of hot water or steam installations, one and two pipe hot water systems, two pipe vapor or steam. Simple installation.

Circle No. 114 on Reader Service Card

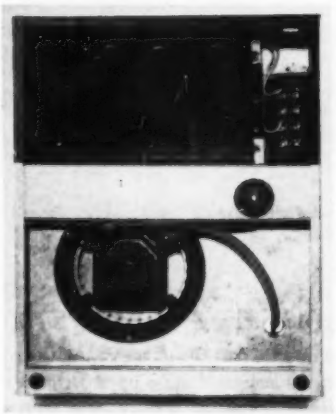
Conditioning System

Product: Hydraline fully recessed system of individual room air conditioning for use with central forced water systems.

Manufacturer: Hydraline Products, Borg-Warner Corp., Kalamazoo, Mich.

Features: Units can be installed between single joists under the floor or between single studding in either

inside or outside walls. Can be installed on: two-pipe reverse return systems; single or multi-loop Monoflow systems; or single or multi-manifold systems. Where available, low temperature well or lake water can be used for chilling purposes. Basic units for either in-wall or under-the-floor installation measure 17¾ x 14 x 4¾". Each unit equipped with manual blower speed



control but at given manual setting, increased fan capacity on cooling cycle is automatic because of greater density of chilled air compared to central air. Supplied with diffuser type standard grille. Air flow is diffused and directed upward along outer walls. Air filtering done at return air register in each room. Filters may be easily vacuum-cleaned. Conditioners constructed for adapting to horizontal as well as vertical applications. Units may also be adapted to dual wall application with stack head from the top of the unit to a register on the opposite wall. Stack can be carried up for a high wall outlet or carried through to heat second floor rooms. Capped opening is provided for these uses and 40% of total capacity can be directed through this opening. Distribution balance controlled by adjustable damper in unit. Primary heating surfaces consist of a continuous water tube, folded upon itself for compactness, 10' long, 2½" wide. Tube is constructed from drawn brass .004" thick. Between folds of the tube are die-formed fins of .004" thickness. Total heat exchange surface is equivalent to 60 sq. ft. of gravity radiation under normal conditions. Every unit factory tested at three times normal operating pressures. Central controls recommended include: single zone, consisting of central heating thermostat which controls operation of booster intermittently with boiler water temperature being maintained with conventional aquastat control. Fan operation is automatic by aquastat control within each unit. On cooling cycle a low voltage type thermostat operating through relays controls booster and chiller starter in parallel circuit. Rate of air supply at individual units may be manually adjusted. Each zone may be provided with individual temperature controls.

Circle No. 115 on Reader Service Card

Corrosion-Preventatives

Product: Three "Vapco water conditioning products — Preventive Slime-X, and Cleaner — developed to maintain efficiency of water cooling equipment in air conditioning systems.

Manufacturer: Garman Co., Inc., St. Louis, Mo.

Features: Preventive inactivates solids usually found in water and holds them in solution to be drained off naturally once a month. Also contains chemicals to inhibit slime and algae growth and to prevent corrosion. Neither acid nor alkaline, it will not harm wood or metals or discolor water. Slime-X is used as "shock" treatment to kill slime bacteria and algae growth. It is an organic chlorinated phenol activated by incorporating a penetrant and an interface contacting agent. It is not corrosive to metals and is non-injurious to wood. Cleaner is an acid-type salt designed to remove scale and other incrustments which may have accumulated on equipment through lack of proper water treatment. It was designed so as to minimize damage to equipment and permit safety and ease in handling. Shutdowns are not necessary when using any of these products, as they work while air conditioning system is operating.

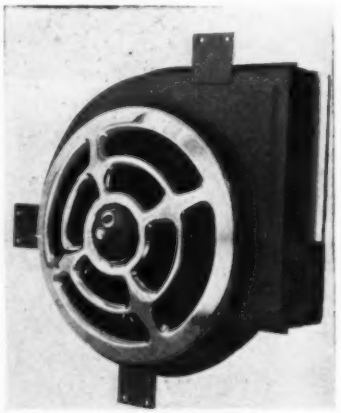
Circle No. 116 on Reader Service Card

Ventilating Fan

Product: Marco "V8" ventilating fan.

Manufacturer: Marvin Mfg. Co., Los Angeles, Calif.

Features: Squirrel cage blower and axial flow blade are combined in this fan. Maximum air flow assured by scientifically designed blade propelled by floating-power



motor. Blade is of special aluminum alloy for lightness. All parts easily accessible. To open J-Box for wiring, simply loosen one screw and remove box cover. After plastering, pre-wired motor plugs into handy receptacle. Complete unit is only 3¼" thick. Standard finishes are chrome and white enamel; brass and copper are available. Motor specifications are: 110 volts, 60/50 cycle, 100 watts. Discharge rating: 350 cfm; free air 800 cfm.

Circle No. 117 on Reader Service Card

Dehumidifier

Product: Models 21H and 21 adsorption type dehumidifiers.

Manufacturer: Dryomatic Corp., Alexandria, Va.

Features: Models differ in that model 21H illustrated includes an additional indicator panel and a humidistat which regulates room humidity to any predetermined level. Units plug into standard home elec-

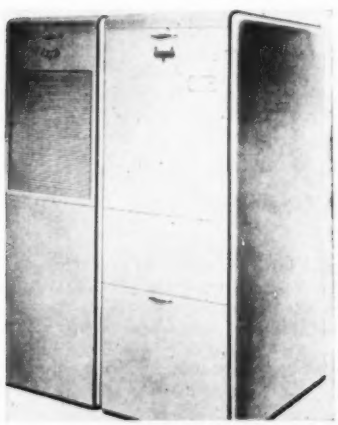
tric current supply. Adsorption type dehumidifier operates on principle that certain chemicals have an affinity for moisture particles in the air. In these units, air is passed through a bed of special drying agents

which absorb any moisture. The air is then returned to the room dry and dust-free. After drying agent becomes saturated it is automatically electrically reactivated and adsorbed moisture is expelled to outside in form of water vapor. No liquid is deposited during the process, no chemicals to displace, and no attention is needed. Size of both models is 20½" high, 15½" wide and 13" deep. Finished in two-tone colors.

Circle No. 118 on Reader Service Card

Home Air Conditioner

Product: "Command-Aire" year-round home air conditioning system.



Manufacturer: Bryant Heater Div., Affiliated Gas Equipment, Inc., Cleveland, Ohio.

Features: Twin units may be installed together, or separately, if desired. Installation of heating unit may be followed at later date by addition of the cooling unit without the necessity of adding ducts or other alterations. Uses either gas or oil burning heating units. Separate blower systems in each unit provide air for heating and cooling, prevent overloading of blower.

Circle No. 119 on Reader Service Card

FARR APPOINTS FOUR NEW SALES REPS.

Four new representatives are announced by Farr Co. of Los Angeles. They are the St. Louis Air Filter Sales & Service Co., St. Louis; Air Filter Sales & Service-Denver, Denver; Air Filter Sales & Service-Minnesota, Minneapolis; and Dust Control, Inc., Hawthorne and San Diego, Calif.

Each of these firms will represent Farr sales and service in their respective areas.

USEFUL BULLETINS · BOOKLETS · CATALOGS

The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

SEAMLESS COPPER TUBING is presented in a folder offered by Penn Brass & Copper Co. Cleanliness available with the firms' tubing is shown in the "cotton test" comparison between different makes of tubing. Safe working internal and external pressures are tabulated and a system for calculating bursting pressures of seamless tubing is provided. Personalized "Job-Pak" cartons with one side blank for imprinting of dealer's name are also described.

Circle No. 131 on Reader Service Card

PNEUMATIC CONTROL accessories are cataloged in a pamphlet available from Minneapolis-Honeywell Regulator Co., Industrial Div. Catalog 8950 describes, illustrates and provides specifications for a wide variety of accessories for pneumatic control including the field of air conditioning. Piping systems are diagrammed and data is furnished for computation of air capacities. Complete specifications are also listed for each type and style control.

Circle No. 132 on Reader Service Card

VIBRATION ISOLATION in suction and discharge line connections to refrigeration and air conditioning machinery, pumps and turbines by installing Flexon "Vibra-Sorbers" is described in a mailing piece available from Flexonics Corp., Chicago Metal Hose Div. Complete specifications on this flexible metal hose are included along with a cut-away view of the hose which shows construction features. Diagrams illustrate how horizontal and vertical vibrations are compensated by use of the hose.

Circle No. 133 on Reader Service Card

CONTROLLING CORROSION AND RUST in salt brine refrigeration systems is discussed in a 4-page folder available from Calgon, Inc. The booklet describes the corrective action of "Banox" in brine lines. Descriptions of how the chemical additive works on the salt solution rendering it less corrosive than ordinary tap water are included. Application instructions and procedures are also covered.

Circle No. 134 on Reader Service Card

INDUSTRIAL V-BELTS and their application are covered in a bulletin recently issued by Durkee-Atwood Co. This catalog is published with new increased horsepower ratings approved by the Rubber Manufacturers Assoc. Also contained are two correction factors; length correction and small diameter factor for use in designing a V-belt drive. This 16-page catalog contains 23 tables devoted to revised drive tables for quick calculation. Sheave sizes and standard groove dimensions sheaves also are included.

Circle No. 135 on Reader Service Card

(More Useful Literature on page 92)

Introducing

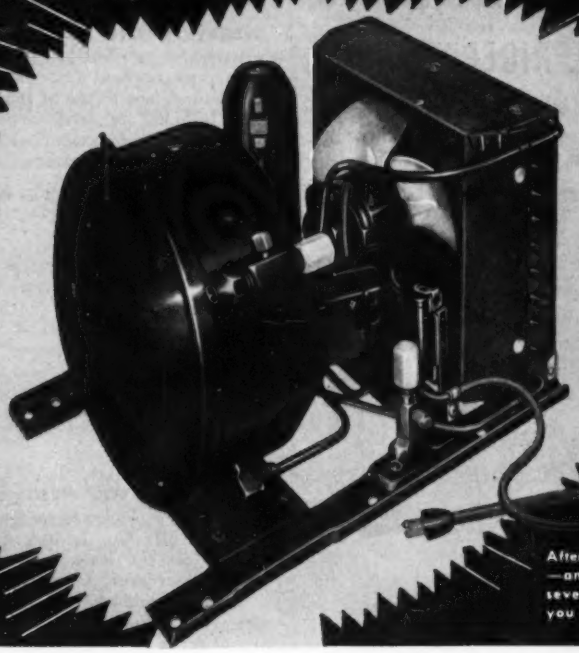
KELVINATOR'S HERMETICALLY SEALED INTERNALLY-MOUNTED CONDENSING UNITS!

Costs Less!

More Efficient!

Quieter!

Easier To Service!

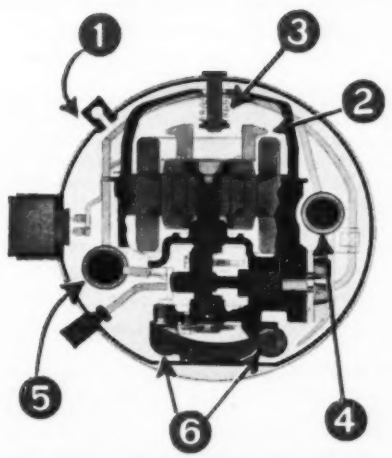


Weighs Less!

More Compact!

Easier To Handle!

After 5 years of painstaking engineering —and one year of field testing under severest conditions—Kelvinator brings you the newest-of-all condensing units.



Here's why this new Kelvinator is the finest piece of refrigeration mechanism you can buy . . .

1. Suction at the *top* of the dome directs cool refrigerant over motor windings and compressor body. This makes lower operating temperatures and *more efficient* cooling possible. 2. Fan attached to motor rotor whirls refrigerant to inside walls of dome to get rid of heat *faster*. Further efficiency. 3. Compressing mechanism "floats" inside dome—rather than being firmly attached to it. Makes operation practically *noiseless*. 4. Suction muffler and discharge muffler (5) further contribute to quietest possible operation. 6. Multiple springs are twin stabilizers that absorb torque reactions. *Less vibration.*

In addition, the new internally-mounted Kelvinator eliminates shipping bolts. It's light in weight, more compact, yet has more-than-ample capacity. It's completely protected against abnormal handling and operating conditions . . . and has the most foolproof pressure-feed lubricating system. The new plug-in type relay makes it the easiest unit to test and service. On top of all this, it's *lower* in cost than externally-mounted units. Available from ⅓ thru ½ H.P. . . . For full information and prompt service, contact your nearest Kelvinator distributor or Zone Office.

Manufacturers of Commercial Refrigeration for 30 Years

Kelvinator

Division of Nash-Kelvinator Corporation, Detroit 32, Michigan

Circle No. 72 on Reader Service Card

USEFUL LITERATURE . . .

Continued from page 90

WELDING FITTINGS for piping services are described in a 36-page ordering and engineering reference book prepared by Welding Fittings Div., Bonney Forge & Tool Works. Information and illustrations on "WeldOlets" used in butt-welding and socket welding and "ThredOlets", used for making threaded outlets, are included. Sizes, installation instructions and a technical section covering design, engineering and material specifications are also included.

Circle No. 136 on Reader Service Card

VIBRATION AND NOISE ISOLATION bases for fans and motors are described and illustrated in catalog FB-802 available from Korfund Co., Inc. Purposes of and reasons for isolation of fans by use of Duplex vibration systems are given. Also included are detail photos which illustrate construction features. Typical installations are listed and specifications are included for each type base.

Circle No. 137 on Reader Service Card

FOR YOUR AID in selecting the correct flexible metal hose for your jobs, Atlantic Metal Hose Co. has prepared bulletin 15-D which contains all the necessary information. Lists descriptions and illustrations of the firm's line of high pressure interlocking bronze and steel flexible hose, tar and asphalt hose, loading and unloading, and necessary couplings. Applications, full test and engineering data are also included.

Circle No. 138 on Reader Service Card

JUST WHAT YOU NEED to maintain control equipment properly is explained in an 8-page manual presented by Allis-Chalmers Mfg. Co. Loaded with information on maintenance of controls, the manual also contains photographs showing proper procedures. As an extra feature, this release contains 2 pages of trouble-shooting charts, listing symptoms, possible causes and cures for various controls and component parts. A preventive maintenance check list with 26 suggested points is on the back cover.

Circle No. 139 on Reader Service Card

DEHUMIDIFICATION QUESTIONS are answered in the pamphlet available from Abbeon Supply Co. The company has taken some of the most frequently asked questions concerning humidity problems and has compiled them in a 4-page bulletin. Also included in bulletin 374 is a table showing recommended humidities for various industries. Photographs and descriptions of model AB-6 dehumidifier are also included, as well as home basement dehumidifier units, silica gel units and accessories.

Circle No. 140 on Reader Service Card

VERTICAL PUMP MOTORS with hollow and solid shafts are covered in bulletin 1250 presented by Louis Allis Co. Various types of enclosures available for these motors are described and many applications are illustrated. Several 4-color cut-away illustrations and phantom drawings show details of the non-reverse ratchet, types of oil and grease-lubricated thrust bearings available, and construction features.

Circle No. 141 on Reader Service Card

(See page 85 for Air Conditioning Literature)

NEW PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

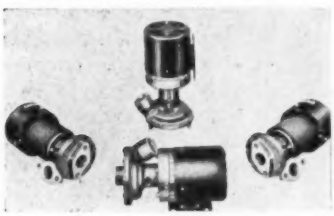
(For Air Conditioning Products turn to page 86)

Multi-Purpose Pumps

Product: Small pumps for all types of liquids.

Manufacturer: Taco Heaters, Inc., Providence, R. I.

Features: Can be used as coolant pumps and many other similar applications. Available in variety of



specifications, are usually equipped with bronze body and impeller, stainless steel shaft and motors ranging from 1/100 to 1/12-hp. Sizes are determined by specific design requirements. Delivers up to 22 gpm and operates up to 21-ft. head. Modifications from existing designs to fit individual specifications can be readily accommodated.

Circle No. 151 on Reader Service Card

Fire Pots and Torches

Products: Line of liquid petroleum fire pots and torches.

Manufacturer: Turner Brass Works, Sycamore, Ill.

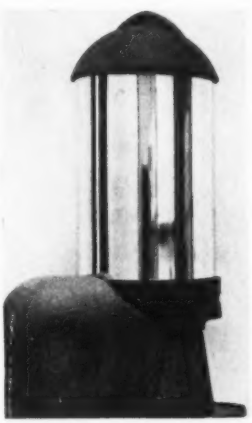
Features: Fire pots designed for either bench-type or tank-type units. Corrosion-resistant cast aluminum base, steel supporting posts, cast iron burner with wide flame range and high speed melting efficiency. Brass assembly parts, one-hand operation of flame control valve, one-piece steel hood, permanent windshield for all-weather use. Operation is at full tank pressure without requirement of regulator. Tanks are available in 20-lb. and 11-lb. sizes; have full-diameter, full-curled foot ring for greater stability. Torch comes with three interchangeable all-brass burners; needle-point, medium, and large. Torches do not require pressure regulators, are easy lighting, have removable orifice blocks. Flame adjustment is by one-hand valve control.

Circle No. 152 on Reader Service Card

Ice Shaver

Product: Sanitary ice shaver machine.

Manufacturer: Sno-Master Mfg. Co., Baltimore, Md.



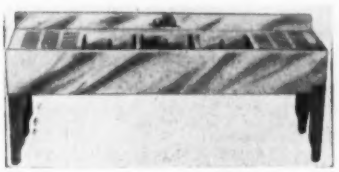
Features: The manufacturer is offering machines to all retailers in the drug, grocery, refreshment counter and allied trades, and to their distributors, for a free trial. Machine makes Sno-Balls and Cones from which the owner gains an 8c profit on each 10c sale and 12c on every 15c sale, according to the manufacturer. Machine takes up only 1 sq. ft. of counter space. Equipment jobbers can obtain these units to accommodate free trial requests. Further details available from the manufacturer.

Circle No. 153 on Reader Service Card

Drain Boards

Product: De Luxe stainless steel drain boards for use in bars, taverns, cafeterias and restaurants.

Manufacturer: Nor-Lake, Inc., Hudson, Wis.



Features: Available in 2 or 3-sink models, drain boards are 18" wide, from 4 to 8' long. May be selected with sinks centered on board, or at either end of the unit. Highly polished .025 No. 4 stainless steel finish. Sinks 12 x 15 x 9" deep with rounded square pressed bottoms. Stainless steel apron on the front, adjustable-type legs. Matching cocktail unit available with drain boards is stainless steel lined and insulated, has 6-bottle capacity.

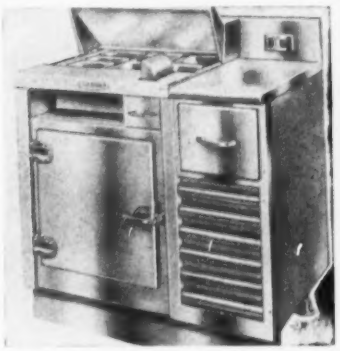
Circle No. 154 on Reader Service Card

Sandwich Unit

Product: "The Rex" compact sandwich unit.

Manufacturer: Stainless Food Equipment Co., Newark, N. J.

Features: Unit is only 36 x 24" with self-contained compressor unit.



Plug unit into electric outlet for instant operation. Factory sealed 1/8-hp compressor provides ample refrigeration for the 5.1 cu.ft. of re-

frigerated storage it provides. Seven stainless steel insets, steel bread drawer and laminated maple cutting board with stainless steel crumb board and drawer. Stainless steel front, top, roll cover and hood. Sanitary rounded drawer and interior bottoms. Glass fiber insulation. Built-in light with automatic door switch.

Circle No. 155 on Reader Service Card

Soldering Flux

Product: Stainless steel "48" flux developed for use on stainless steel, monel, inconel, nichrome, and other alloys.

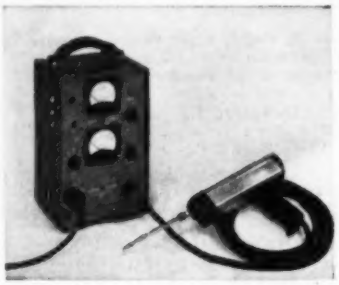
Manufacturer: Remont Mfg. Co., Lombard, Ill.

Features: Flux removes oxides without affecting corrosion resistant properties and assists solder to flow at lowest possible temperatures. Promotes high capillary action of the solder, is displaced from solid metal by molten solder and any flux residue can easily be removed with water. Suitable for solder-iron, flame or dip soldering.

Leak Detector

Product: Type H-1 portable halogen-sensitive leak detector for finding leaks in closed systems.

Manufacturer: General Electric Co., Meter & Instrument Dept., Schenectady, N. Y.



Features: Leaks so small that only 1/100 ounce of gas will escape during a one-year period are detectable with this instrument. A loud speaker has been built into the control unit for audible detection of leaks. Automatic balancing circuit compensates for changes in background air contamination. Light-weight, internal voltage stabilizer is built into the detector. Leaks can be simultaneously indicated by means of the dial, earphone attachment or through the loudspeaker. Equipment consists of pistol-like "sniffer" and 17-lb. control box. For use in the field and factory for service testing of equipment such as refrigerator and air conditioning systems, compressors, piping systems, radiant heating systems, valves, etc.

Circle No. 156 on Reader Service Card

Chilling Machine

Product: "Sub-Zero" test chamber.

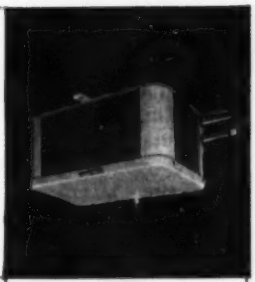
Manufacturer: Sub-Zero Products Co., Cincinnati, Ohio.

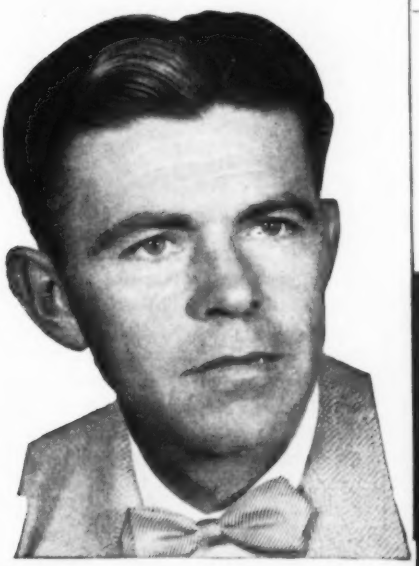
Features: Unit is available in sizes from 1½ to 4 cu. ft. with temperatures ranging from -10 to -120 F. Uses only 7½ sq. ft. of floor space. Instrumentation is provided as needed with either indicating or recording thermometers. Temperature control adjustable from 25 to -125F, is located inside cabinet to prevent unauthorized tampering. Chilling unit has special heavy gage steel walls. Entire unit all-steel con-

No. 11 of a Series of 12 Advertisements

Good Men to Know!

DAVID F. S. GALLOWAY
Cooling and Heating Supplies
Pensacola, Florida





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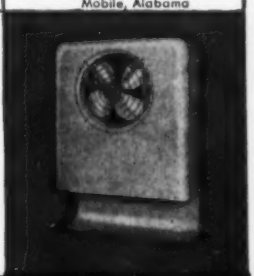

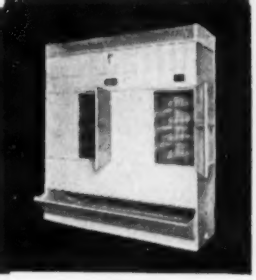

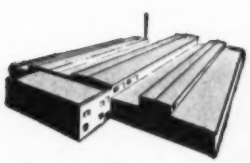

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Minneapolis 13, Minn.

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CONSULT YOUR McQUAY WHOLESALER FOR EVERY REFRIGERATION NEED

McQuay is proud of its complete line of *proved and preferred* refrigeration equipment and of the men who represent the company to you. There is a McQuay wholesaler in your territory, qualified by long experience and backed by the entire McQuay sales and engineering organization, who can give you the right answer to your specific problem — whether it's selling help, technical advice or quick action you want. Consult your McQuay wholesaler or write McQuay, Inc., 1643 Broadway N. E., Minneapolis 13, Minn.

McQuay INC.

REFRIGERATION
HEATING
AIR CONDITIONING

MANUFACTURERS OF HEAT TRANSFER EQUIPMENT SINCE 1923

Circle No. 75 on Reader Service Card

structed. Standard motors controls and components are used throughout for ease of maintenance. Optional equipment available for special testing requirements include: circulators for air or convection fluid for close temperature control throughout chamber; lid can be equipped with frost-proof observation window.

Circle No. 157 on Reader Service Card

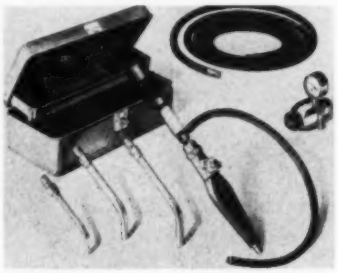
BUY FROM YOUR REFRIGERATION WHOLESALER

Leak Detector Outfit

Product: Prest-O-Lite refrigeration and air conditioning outfit for leak detection plus equipment for heating and brazing.

Manufacturer: Linde Air Products Co., Div. of Union Carbide & Chemical Corp., New York City.

Features: Supersensitive "Halide" leak detector stem in the outfit gives accurate and positive detection of refrigerant gas leaks. Locates leakage of such gases as F-11, F-12, F-21, F-113, F-114, and Carrene; also methyl bromide (fumigant) vapors in air, where such concentrations are less than 10%. Detector shows up as little as 20 parts of refrigerant gas in a million parts of air. Sensitivity of reaction plate and flexibility of 3-ft. suction hose permits pin-point location of leaks. Outfit includes three torch



stems to provide correct flame for all open-flame soldering, heating, and bending uses. Stems fit interchangeably on No. 401 precision handle. Built-in "gas-miser" pilot flame control on handle saves time and fuel during intermittent work. Outfit also includes R-411B acetylene regulator which maintains selected pressure at torch regardless of tank pressure, and 12½′ length of 3/16″ acetylene supply hose. Steel carrying case holds complete outfit with extra room for wrenches and other small tools.

Circle No. 158 on Reader Service Card

Ice Cube Crusher

Product: "Kwik Kube Krusher" model B for crushing ice cubes into snow or coarse particles.

Manufacturer: Gary Mfg. Co., Los Angeles, Calif.

Features: Crusher is powered by ⅓-hp motor with an enclosed switch and plug-in cord. Rotor and regulator are made of nickle-bronze with teeth milled to sharpness. But-

Circle No. 76 on Reader Service Card

terfly bolt at front of machine adjusts for any degree of coarseness desired. Unit crushes up to 30 lbs. of ice per minute. Enclosed in a heavy cast aluminum case painted crackle gray. May be used with legs or bolted to any heavy table or bench. Dimensions with legs are about 26" high, 14½" long and 11½" width. Without legs unit stands 13" high.

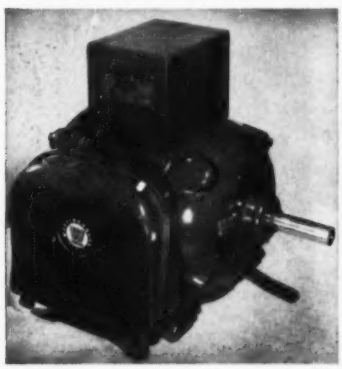
Circle No. 159 on Reader Service Card

Single-Phase Motor

Product: Type CAP-2 motor which is both capacitor-start and capacitor-run.

Manufacturer: Westinghouse Electric Corp., Pittsburgh, Pa.

Features: Made in 5, 7½, and 10-hp ratings, is a 4 pole, 220 volt, 60 cycle motor. Operates efficiently at near-unity power factor. Current



starting is reduced about 25%, with same high starting torque. Auxiliary winding remains in the circuit during operation and is in series with the running capacitors. Relays merely remove starting capacitors when motor approaches full speed. Main winding is directly across the line. Elimination of wound rotor, brushes and commutator is said to make for a simpler motor requiring less maintenance.

Circle No. 160 on Reader Service Card

Insulation Adhesive

Product: "Laykold" insulation adhesive for use in cold insulation construction.

Manufacturer: American Bitumuls & Asphalt Co., San Francisco., California.

Features: Heavy-bodied asphaltic emulsion made from high-

ductility, plasticized base-asphalts. Applied cold, eliminates cost of heating equipment. Compounded without use of fire-hazardous petroleum solvents, water absorbent clays or other types of fillers which could cause re-emulsification. Before setting, odorless adhesive is buttery in consistency, suitable for easy spray or brush application without sagging during setting period. Used for vapor barriers with various types asphaltic papers, fabric, glass fiber, foil and block insulation.

Circle No. 161 on Reader Service Card

Wall Cooler

Product: Wall-type beverage and dairy cooler.

Manufacturer: Bally Case & Cooler Co., Bally, Pa.

Features: Built to occupy store space not normally utilized for sale of profit items. Recommended for use in package stores and taprooms where cold beer must be available for quick and easy sale. Full interior and exterior is covered with acid resistant porcelain which never turns yellow or peels. Available in three models, 4, 8 and 12′ lengths, offering display areas of 24, 48 and 72 sq. ft. and capacities of 33, 68 and 102 cu. ft. respectively. All models are 31″ deep, 81″ high. Equipped with light weight sliding

doors which can be lifted out to convert case into self service case during rush hours. Smallest cooler has 2 top and 2 bottom sliding doors; the 8′ cooler has 4 of each and the 12′ cooler has 12 of each. Small cooler has ⅓-hp. compressor, ½-hp. unit is used in 8′ cooler and the largest is cooled either by a ½ or ¾-hp. compressor, depending on conditions. Ready to operate when electric cord is plugged in.

Circle No. 162 on Reader Service Card

Storage Bin

Product: Model U-300 ice cube storage bin.

Manufacturer: Dunhill Soda Fountain Corp., Brooklyn, N. Y.

Features: Unit has three stainless steel sliding doors on an inclined front panel for easy reach into storage area. Capacity is about 250 lbs. of cubes. Sides and top insulation is glass fiber and the bottom is 2″ solid corkboard. Entire shell is treated with moisture-proof

adhesive cement for airtightness. All-steel cabinet construction of 24 gage stainless in the interior and 18 gage baked enamel finish on the exterior.

Circle No. 163 on Reader Service Card

Low Temperature Units

Product: "Kathabar" low temperature units with capacities up to 17,000 cfm.

Manufacturer: Surface Combustion Corp., Toledo, Ohio.

Features: Handle requirements for sub-zero air down to -100 F. Units will deliver air at 25 to 30 F lower dewpoint than dry bulb temperature of the air. In many cases this eliminated necessity of cooling air to required dewpoint temperature, and substantial refrigeration savings are afforded. These units, modifications of conventional units for obtaining absolute humidities, are provided with increased air moisture absorbing capacity through use of refrigerants, such as brine, methanol, ammonia, Freon and chilled water, in the cooling coils. Low dewpoint, sub-freezing air is supplied continuously and automatically to process areas without frost formation, assuring maximum time for operation of low temperature processes.

Circle No. 164 on Reader Service Card

Industrial Flashlight

Product: "Duo-Flex" industrial flashlight with built-in dual lighting system.

Manufacturer: U. S. Electric Mfg. Corp., New York, N. Y.

Features: Probe-light provides illumination source for pin-point inspection of inaccessible parts and

equipment. Besides the 1000 ft. flashlight beam, unit has a slide-out cable with bulb and plastic guard. when side arm is extended, light is automatically transferred to the small bulb, and the extension tube encased in the arm can be goose-necked around corners or into deep spots. Over-all extension of the probe-light arm measures 10½". Flashlight housing is heavy-walled plastic with a red "danger zone" lens ring, fixed focus bulb and reflector for long range lighting.

Circle No. 165 on Reader Service Card

Saw Attachment

Product: "Key-Hak" attachment for all types of installation and maintenance work.

Manufacturer: Producers & Distributors, Inc., Allentown, Pa.

Features: Attachment fits any heavy-duty ¼" electric or air drill or motor driven flexible shaft. Drills

with chuck speeds of 2000 to 3000 rpm are most suitable. In-line mechanism affords operator complete control when cutting in any

direction. Three ball bearings used in drive and crank mechanism. After assembly saw is sealed in special lubricant which gives protection to all moving parts for 500 hours of actual running. Each tool is tested at 2500 strokes per minute before shipment. Designed to cut without aid of a starting hole into 20 gage or lighter sheet metal as well as into wood of any thickness. Blades are available for cutting into monel, stainless steel, chrome vanadium, bronze, copper, aluminum, chromoloy, zinc and lead. Scroll cuts as well as straight cuts can be made in building materials such as wood, transite, masonite and gypsum block, etc.

Circle No. 166 on Reader Service Card

Vacuum Pumps

Product: NRC rotary gas ballast pump which pumps vapors, such as water vapor, without oil contamination or loss of pumping capacity.

Distributor: National Research Corp., Cambridge, Mass.

Features: Basic pump unit of German manufacture is imported by National Research Corp. which adds American motors, pulleys, flanges and controls. Pump prevents condensation of vapors by keeping vapor pressure below condensation pressures by use of gas ballast. A small quantity of air is bled into the pump after intake is completed and as compression is about to occur. Power requirements are said to be as low or lower than those for conventional mechanical pumps lacking gas ballast feature. Needs no accessory equipment, eliminates need for oil treating units. Reduces oil consumption and oil inventory. Offered in single-stage units with capacities from 2 to 400 cfm, compound units (two rotors on same shaft) with capacities from 2 to 15 cfm, and in combination units (in which two single-stage pumps are combined in series) with capacities from 30 to 400 cfm.

Circle No. 167 on Reader Service Card

Automatic Timer

Product: Model 3170 automatic electric timer for turning on and off appliances at pre-designated times.

Manufacturer: Fresh'nd-Aire

Co., Div. of Corp Corp., Chicago, Ill.

Features: Timer can be used on any electrical appliance to automatically start and stop operation at a time previously set. Length of time can be varied by setting dial to desired number of hours. Timer automatically turns on appliance and lets it run for the designated time period. Then timer shuts off the appliance. Procedure is repeated at the same hour, for the identical length of time, each day.

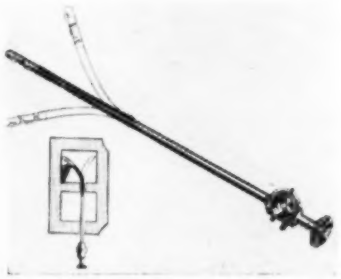
Circle No. 168 on Reader Service Card

Inspection Aid

Product: "Inspectroscope" tube allows visual inspection of otherwise inaccessible areas.

Manufacturer: Eder Instrument Co., Chicago, Ill.

Features: Just as a doctor inserts a gastroscope down a patient's throat into the stomach, production and maintenance men can place this tube along narrow passages or into moulded cavities. Tube fits through any ½" opening. A complex set of tiny lenses (as many as 60 lenses are in the tube) reflect the image back and forth to the inspector's eye. A strong light illuminates the area being viewed. To fit around



corners, a control wheel on the handle curves the tube so that almost all areas of a cavity can be seen. Instrument detects defects in hidden areas earlier in production, saving costly dismantling and repair expenses.

Circle No. 169 on Reader Service Card

Packaged Kitchen

Product: "Vent-A-Chef" all-in-one restaurant kitchen.

Manufacturer: Leitner Equipment Co., Chicago, Ill.

Features: Available in dimensions of 5, 6, 7, and 8′ over-all offers flexibility of ventilation with either up, down, or back draft system at no extra cost. Heavy mesh grease filters are completely con-

cealed, yet are easily removed for flushing. High velocity ventilating system exhausts cooking grease, smoke and odor. Self-supporting unit requires no wall bolts. Electrically-welded construction of polished heavy gage stainless steel. Flush or recessed cooking top accommodates electric or gas equipment. Refrigerated base has high density, vapor sealed Fiberglas insulation, moisture proof door jambs, Neoprene grease-proof gaskets. Lam-

inated maple cutting board is easily removable, will not warp or crack. Five-year warranty on self-contained refrigeration system. Available with flush-top to accommodate cooking and frying equipment of uniform height or with recesses for equipment of different heights.

Circle No. 170 on Reader Service Card

Insulation Board

Product: "Palco" insulation board for use in floors, walls, roofs, and self-sustaining partitions of cold storage and freezer rooms.

Manufacturer: Pacific Lumber Co., San Francisco, Calif.

Features: Available in standard sizes of 12 x 36", 18 x 36", 24 x 48" and in special sizes up to 48 x 72". Low thermal conductivity (K factor) of .30 Btu and low moisture absorption meet requirements of cold storage and other commercial applications. Compressive strength rated at 7.06 psi. Weight 11 lbs. plus or minus per cu. ft., high transverse strength of 68 to 70 lbs. Composed primarily of redwood bark fibers, is odorless, repellent to rodents and insects, resistant to fungus or decay.

Circle No. 171 on Reader Service Card

Rubber Doors

Product: "Rubbair" doors designed to withstand hard industrial usage, as in refrigerated storage rooms.

Manufacturer: Stic-Klip Mfg. Co., Inc., Cambridge, Mass.

Features: Rugged rubber structure is light in weight, flexible, strong, and durable. Resists abrasion and withstands impact from a steady flow of industrial trucks. Minimizes down-time caused by breakage; practically eliminates replacement and repair costs. Quiet action. Resilient construction removes hazard of injury to personnel. Simplified hinge mechanism will not shear or loosen. Doors close quickly, thus assisting in maintenance of proper temperatures in refrigerated rooms.

Circle No. 172 on Reader Service Card

STURTEVANT MGR. GETS ORDER OF MERIT

The Order of Merit, highest honor granted to employes of the Westinghouse Electric Corp. for outstanding service, was awarded to Gardner C. Derry, manager of the Sturtevant Div. The award, which was voted by the Westinghouse board of directors, consists of an embossed scroll and a medallion.

WINDOW TREATMENT . . .

Continued from page 77

than absorbing them and turning into a radiator itself.

With this in mind, two temperature readings were made: (1) on the surface of the material, to determine its heat absorption and radiation; (2) in air immediately back of the material, to show how much solar radiation was trapped from entering the room.

All readings were made on a sunny day and registered simultaneously to avoid any shifting conditions. The first experiment was made with aluminum and steel, both painted white; then the test was repeated with unpainted materials to determine the reflecting and absorbing properties of the materials themselves. The results are shown in the table at the end of this article.

As indicated previously, it is difficult to state the precise effect blinds will have in reducing indoor temperatures brought about by solar radiation, as this depends on many factors beside the blind itself. Results of this test, however, show aluminum as the most efficient reflector of heat, acting somewhat like a mirror, absorbing and transmitting less radiant energy than steel slats or window shade cloth, with consequent savings on space cooling load in air conditioned buildings of any type.

As this data indicates, the air conditioning contractor should take keen interest in the type of window treatment to be specified by the architect, as it may greatly influence the size of equipment to be installed, and the extent to which this equipment performs to the satisfaction of the building's occupants.

* * *

Materials	Surface Temp. Degrees F.	Air Temp. Degrees F.	Radiation Gain above lowest reading
Aluminum (painted white)	83.5	79.0	0%
Steel (painted white)	86.5	82.0	3.8%
Aluminum (unpainted)	92.5	91.5	15.8%
Steel (unpainted)	111.5	94.3	19.3%
Window Shade Cloth	99.0	101.0	27.8%

YEAR-ROUND CONDITIONING GROWS . . .

Continued from page 77

finished in stone, brick and double-coursed pre-dipped cedar shingles. Interiors are finished in a variety of styles and modes which are available through the use of the year-round air conditioning. Fully-equipped kitchens are featured in these homes.

Homes have lifetime copper or brass piping and Rockwool insulation has been applied throughout. The plots cover ¼ acre with 100′ frontage, and have a black top driveway leading to a two-car garage. The development is within easy commutor reach of New York City.

•

In the contemporary model home on display in the South Gate housing development at **Summit, N.J., General Electric's** Air-Wall system of heating-cooling is a standard feature and is included in the $19,000 price. The home is cooled in the summer by electric refrigeration and is warmed in the winter by automatic gas heating.

The G-E year-round air conditioner is located in a small utility room off the recreation room in the basement.

Designed by Joseph DePalma, architect, the homes offer diversity of styles in modern and conventional design. Each homesite will be a ¼ acre or more and will be professionally landscaped.

The display home is of a split-level design. It contains three bedrooms, two complete bathrooms, kitchen, living room, separate dining room, a mahogany paneled recreation room and an attached garage with a rear entrance.

Freedom of furniture placement, permitted by special design of Air-Wall registers, is a feature of the interior decorating.

BUY FROM YOUR REFRIGERATION WHOLESALER

open. This will be indicated by an outlet water temperature much in excess of 95 F.

Causes of Restrictions

Restrictions in commercial air conditioneres are most likely to occur at driers or filters, usually located in the liquid line. A screen is sometimes placed at the suction inlet to the compressor. It may be part of the compressor. Restrictions reduce or stop cooling, wattage or ampere consumption will be less than normal and suction pressure will be low.

A partial restriction in the liquid part of the circuit will be indicated by low temperature or frosting immediately following the restriction. Replacement of the obstructed filter or cleaning of screens is indicated when a restriction is suspected.

Loosening the flare nut on the liquid side of the expansion valve with the pressure down to just above atmospheric and observing if liquid sprays out under full pressure will tell if the liquid line is clear. Goggles should be worn during this operation. The screen in the expansion valve is often the one restricted.

Refrigerant Charge

The refrigerant charge in most commercial conditioners is not critical. Enough liquid should be in the receiver-condenser to permit it to become sub-cooled by the water coil in the bottom of the shell. A few inches is usually sufficient.

The liquid level can be determined by feeling for the place on the condenser, where the temperature is warm or cool. The part containing liquid will be cooler. Too little liquid will be indicated by insufficient cooling and probably a hissing expansion valve. Too much will result in excessive water consumption or high head pressure.

Expansion Valve Adjustment

The function of the expansion valve is to admit the correct amount of refrigerant to the cooling coil. It is constructed so that rise in evaporator pressure tends to close the valve and rise in temperature at the outlet of the coil, where the feeler bulb is connected, tends to open it.

Valves are usually set for 10 to 15° superheat, meaning that the valve will open when the outlet is that many degrees warmer than the coil proper, and close when the temperature difference is less. This is because the evaporator, containing liquid refrigerant, will have a pressure corresponding to its temperature.

Too much superheat will prevent liquid entering all of the coil; the capacity will be reduced. The part of the coil receiving liquid will get colder than normal and may frost. Sensible cooling will be low in proportion to dehumidification. Too little superheat will permit liquid refrigerant to enter the suction line of the compressor. It may cause lubrication disturbance, high suction pressure and decreased capacity.

"Now here's a little number that has everything — including a dash of nostalgia!"

To check the performance of a valve, install a thermometer to read the temperature of the coil outlet where the bulb from the valve is located. Insulate the thermometer bulb from the air. Check the suction pressure with the conditioner in operation. From a pressure-temperature chart, determine the temperature corresponding to the suction pressure. This will be the coil temperature.

If coil temperature is more than 15° less than outlet temperature as indicated by the thermometer, adjust for less superheat: If less than 10°, adjust for more superheat. Between these temperature differences, adjust for best operation. It is most important that the feeler bulb sense the temperature of the coil outlet and not the air stream. It is therefore important that the bulb be insulated from the air and securely attached to the coil outlet. Sometimes the bulbs are inserted in wells within the suction line.

Lubrication

Most commercial air conditioning compressors contain oil pumps for lubrication. Some of them have oil pressure gauge ports. The oil pressure should be read with the suction pressure. The difference will be that of the oil pump. Some conditioners contain oil separators which trap the oil from the compressor discharge and return it to the crank case through a float valve.

Oil sometimes becomes trapped in the evaporator coil or suction piping and can be returned to the crank case by temporarily reducing expansion valve superheat, causing a rapid flow of vapor through the lines, which will carry the oil with it. Too much superheat in the valve will sometimes cause oil to remain in the coil.

Testing for Leaks

Freon leaks can usually be detected with the familiar halide detector. Oil will almost always show up where there is a leak, and certain liquids made for the purpose, when put into the system, will discolor the area surrounding a leak.

A soap solution, applied to places where leaks are suspected, will cause bubbles at the location of the leak. To check for a leak in the water coil of the condenser, shut off the water supply, let the pressure rise to about the high pressure cutout point and check with a halide detector at the water outlet.

Moisture

A minute quantity of moisture is not so apt to freeze at the expansion valve as in low temperature installations because of the higher temperature. Sometimes a filter is used in the liquid line instead of a drier. However, it is important, in all service work, to avoid getting moisture into the system. Moisture may contribute to copper plating, sludge formation and other disturbances. If moisture is suspected, a dehydrator of size suitable for the unit should be installed in the liquid line.

Advertiser's Index

Here's the

ALL-INDUSTRY FAVORITE

Thermostatic Expansion Valve!

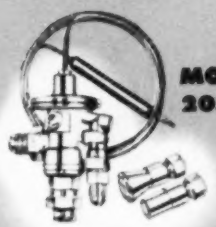
MODEL 207C

RATES FIRST ON 6 BIG COUNTS

THE Model 207C is an all-temperature, all-application expansion valve, featuring the exclusive A-P liquid charge. This popular unit is a streamlined version of the famous Model 207...the industry's largest selling expansion valve. It features all the job-proved advantages that popularized the Model 207. Check the six points listed below and you'll see why leading jobbers throughout the country stock and recommend *dependable* A-P valves.

1. Versatile A-P liquid charge makes valve ideal for all applications...low temperature, commercial or air conditioning. Only one valve to buy.
2. It's made for the three most popular refrigerants.. Freon 12, Freon 22 and Methyl Chloride...in ½ and 1 ton sizes.
3. It maintains "straight-line" super-heat. Less than ½° variation from -20° to 40° suction temperatures.
4. Small size and ease of installation make it a real boon to servicemen. Fits handily in those hard-to-get-at corners.
5. Unusual versatility of application simplifies jobber's stocks. Service organizations need buy fewer valves for all emergency repairs.
6. Now available for first time with external equalizer connections for high pressure drop coils.

Another Popular A-P VALVE



MODEL 205 CE

One of the favorites in the A-P line, popular because of its versatility of application. Combination ⅜" x ⅛" inlet; ⅛" flare outlet on 2 ton size; ⅜" outlet on 3 ton size; 60" capillary. Complete capacity range 1½ to 2½ tons Freon 12. Available with or without external equalizer.

A-P CONTROLS CORPORATION

2486 North 32nd Street, Milwaukee 45, Wisconsin
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Circle No. 87 on Reader Service Card

He Fought Three Days and Nights

Lieutenant Colonel
Raymond G. Davis, USMC
Medal of Honor

COLD, BATTLE-WEARY, fighting for every mile of wintry road, the Marines were re-deploying toward Hungnam. A rifle company was guarding a mountain pass vital to the withdrawal of two regiments. The company became surrounded. If help didn't come, 6,000 men were lost.

Into this situation, Lieutenant Colonel Davis boldly led his Marine battalion. Over eight miles of heavily defended icy trail they attacked, and across three ridges deep in snow.

They fought three days and nights, often hand-to-hand.

But finally Colonel Davis reached and freed the company. He opened the pass and held it till the two regiments got by. Then, fighting through the last of the enemy and carrying his wounded with him, he led his own gallant battalion into safety.

"Korea and World War II have taught me," says Colonel Davis, "that courage is common to *all* armies; it's the *better equipped* side that has the edge. You're giving *our* men that edge every time you invest in a United States Defense Bond. For Bonds, which are personal savings for you, are also muscle for America's economy. Helping produce *more* and *better* combat equipment to protect the brave men who are protecting us all."

Peace is for the strong!
For peace *and prosperity* save with
U. S. Defense Bonds!

Now E Bonds pay 3%! Now, improved Series E Bonds start paying interest after 6 months. And average 3% interest, compounded semiannually when held to maturity! Also, all *maturing* E Bonds automatically *go on* earning—at the new rate—for 10 *more* years. Today, start investing in Series E Defense Bonds through the Payroll Savings Plan at work. Remember, 8 million fellow Americans find it a wonderfully easy way to save. Or ask your banker about the convenient Bond-A-Month Plan.